MicroGoose

setup guide & user manual

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This manual is for use with IT Watchdogs ***MicroGoose*** monitoring devices running firmware revisions 3.3.x or higher. For other IT Watchdogs products or previous firmware revisions, please consult our webpage at http://www.itwatchdogs.com to find the appropriate manual(s) for your application.

MicroGoose setup guide & user manual, rev. 1.05
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MicroGoose USER MANUAL

Introduction

Thank you for your purchase of this MicroGoose remote monitoring system!

To get the most out of your MicroGoose, please take the time to look through this manual to familiarize yourself with the product and its features before attempting to install and operate it.

Note: This model is based on our new Series-II hardware. Users of our previous Series-I models will want to pay particular attention to the sections dealing with network configurations and alarm settings, as these functions have been significantly enhanced in MicroGoose and offer a considerable array of features not previously available in the earlier product series.

(note: your unit's physical appearance may vary slightly from the sample model shown here)

MicroGoose USER MANUAL

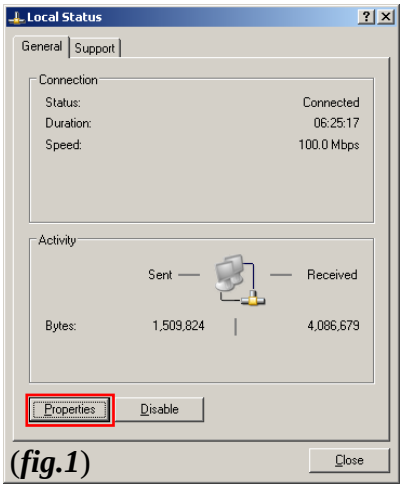
QuickStart Setup Guide

As shipped from the factory, the MicroGoose is configured with the following default network settings:

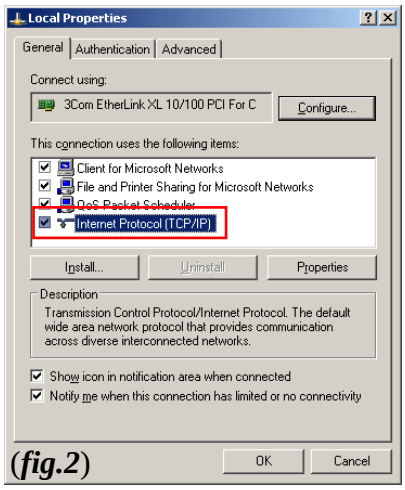
- IP ADDRESS: **`192.168.123.123`**
- SUBNET MASK: **`255.255.255.0`**
- DEFAULT GATEWAY: **`192.168.123.1`**

To initially configure the unit, you will generally need to connect it directly to a laptop or desktop PC via a crossover Ethernet cable, and configure the PC's network card to match the 192.168.***xxx.xxx*** subnet. If your network card is not already configured this way, simply follow these directions (Windows 95 / 98 / 2000 / XP only; Macintosh and Linux users, or users of Windows Vista or Windows-7, should refer to the appropriate help files for their particular systems).

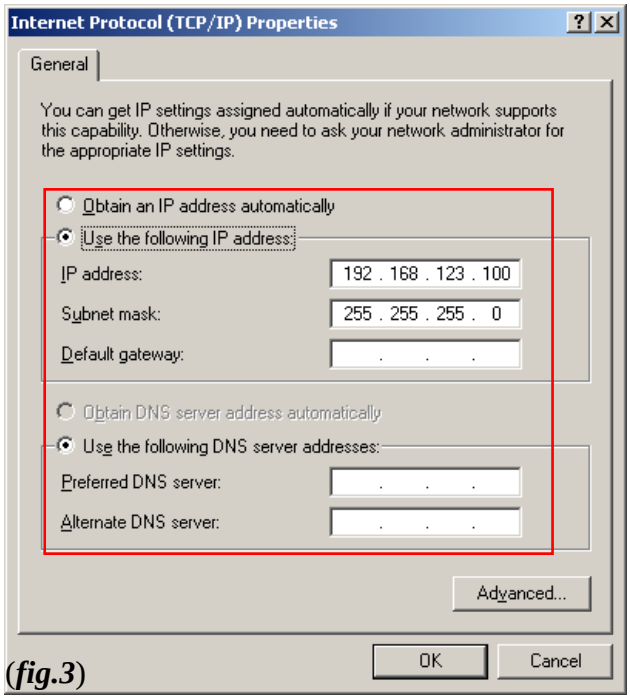
1. Click ***START***, *"Settings"*, then *"Network Connections*".
2. Locate the entry under *"**LAN or High-Speed Internet**"* which corresponds to the network card you're using to connect to the MicroGoose. (Most PCs only have a single network card installed, but if you have more than one, you can determine which connection is which simply by disconnecting the cable from the MicroGoose and seeing which network adapter's status changes from "Connected" to "Network Cable Unplugged.")
3. Double-click on the appropriate network adapter's entry in the Network Connections list to open its status dialog box, then click the *"Properties"* button to open the Properties dialog. (***fig.1***)
4. Find the entry titled *"**`Internet Protocol (TCP/IP)`**"* in the list, then click the *"Properties"* button. (***fig.2***)
5. **NOTE*: Before changing any of the properties on this page, be sure to write down any existing settings so that you can restore them afterwards!***
6. Set the properties as shown. (***fig.3***) Note that it is not necessary to specify a default gateway or DNS server addresses, and these fields should be left blank. Click *"OK"*, *"OK"*, and *"Close"* to back out of the network-settings boxes.
7. The MicroGoose should now be accessible. Note that depending on your PC's configuration and OS version, it may require you to reboot for the changes to take effect.
8. After you have finished configuring the MicroGoose, simply repeat the above instructions and put back the settings you wrote down in step 5 to restore your PC's network card to the proper settings for your network.



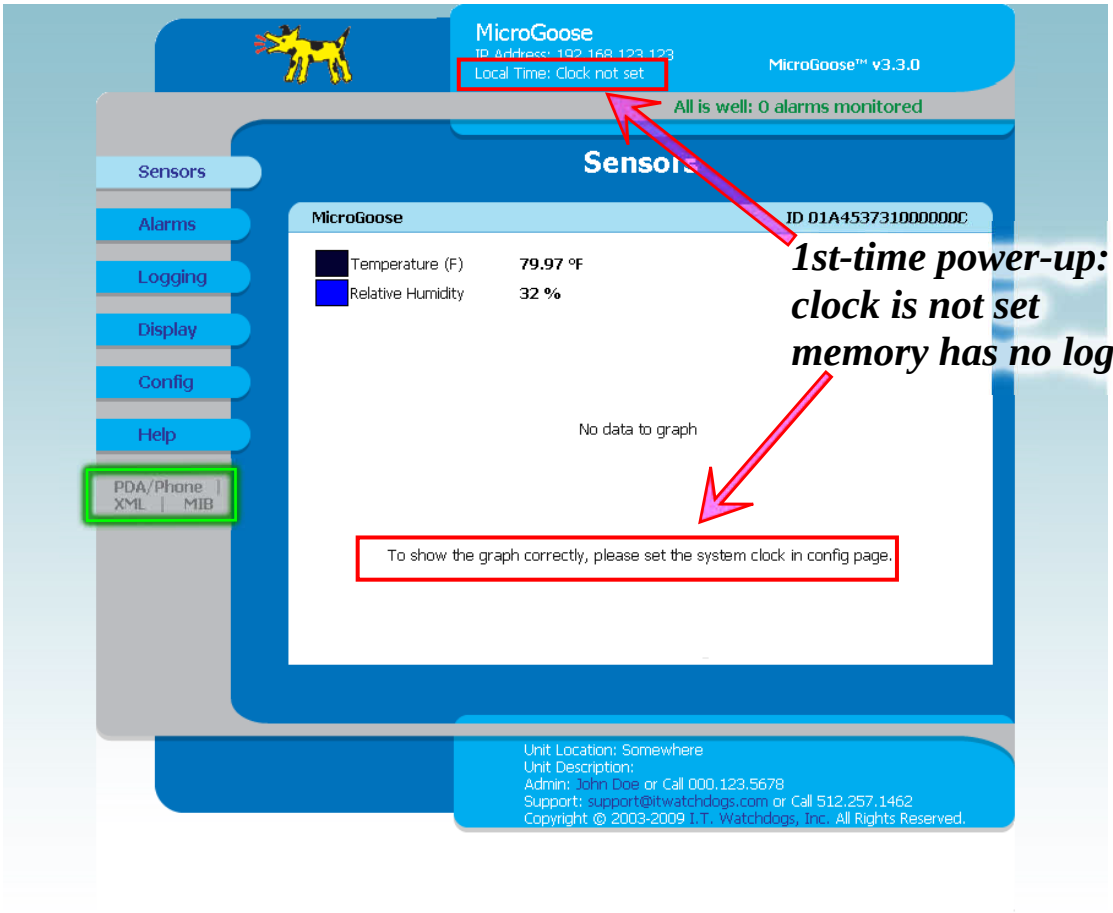
(***fig.1***)



(***fig.2***)


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 123 . 100
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel
(***fig.3***)

Once you have configured your network card to access the MicroGoose, open your web browser and type **`http://192.168.123.123`** into the address bar. You should get a page which looks similar to this:



If this is the first time the unit has been powered up and configured, it will most likely show "no data to graph" and indicate that the unit's internal real-time clock is not set. It may also indicate that the clock is not set if the unit has been left unpowered long enough for the clock's internal backup power to run out (typically about 10 days). While the unit will continue to monitor its sensors and trip alarms (if any are configured) for values which exceed the alarm thresholds, it will not log or graph data until the clock is set.

In this QuickStart guide, we will set the system clock, and briefly point out some other settings which you might want to configure at this time to get your MicroGoose unit up and running. Note that you do not have to set any of these (other than the clock) right now, so if you would prefer to read the more detailed user manual before configuring your unit, feel free to skip over the QuickStart guide.

IMPORTANT NOTE: users of our previous WeatherGoose-I series should be aware that in the MicroGoose configuration menus, each section's ***Save Changes*** button is independent of the others; i.e. clicking ***Save Changes*** in the ***System Clock*** section will only save changes to settings within that section; any changes you might have made to any other sections on the ***Config*** page, such as ***Network*** or ***E-Mail***, will not be saved and will be lost. This is a significant difference from WeatherGoose-I, where ***Save Changes*** acted globally and all of the settings on the page were saved at once.

When you are ready to proceed, click the ***Config*** button highlighted above to bring up the system configuration pages.

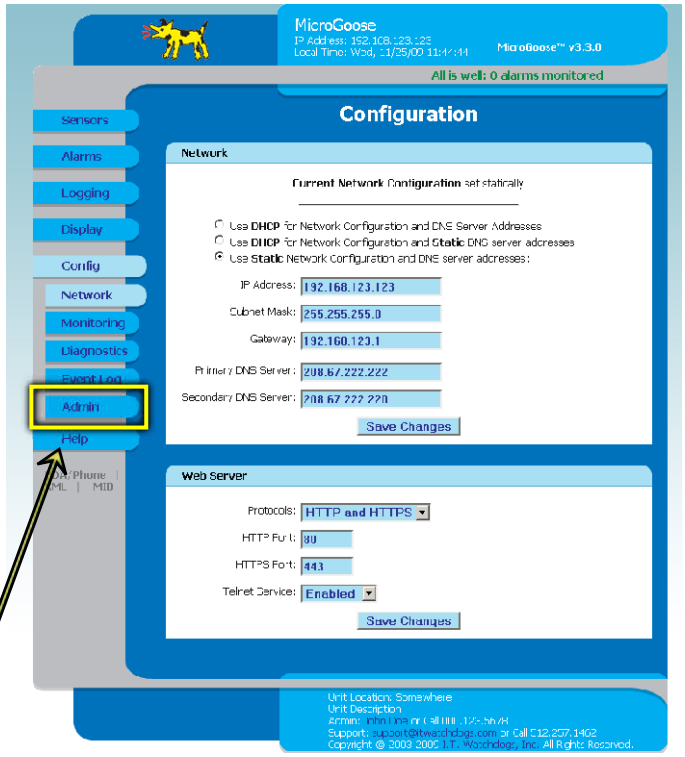
There are a great many settings and configuration options available on the ***Config*** page. At the moment, we will only deal with the basics of a first-time setup of the unit; a more detailed, in-depth coverage of each available setting will be covered later, in the chapter on Configuration.

The ***Config*** page is subdivided into sections, with similar functions and settings grouped together to make them easier to find. When you click on the **Config** tab, the ***Configuration:Network*** page will appear by default; to move to one of the other pages, simply click on one of the other tabs underneath **Config**.

The **Network** tab is where you can either assign the MicroGoose to a specific IP address on your network, or configure it to request its network configuration from your router via DHCP. You can also configure the Web Server to allow or deny encrypted (HTTPS) or non-encrypted (HTTP) connections, change the HTTP and HTTPS ports, and configure the MicroGoose to use a desired set of DNS servers.

NOTE: the moment you click ***Save Changes,*** the unit will switch to its new settings and no longer respond on **`192.168.123.123`**! This, too, is a significant change from our previous WeatherGoose-I product, where the "backup" 192.168.123.123 address was always available. Therefore, we will skip over these setting for the moment, and come back to them as the final step in configuring the unit.

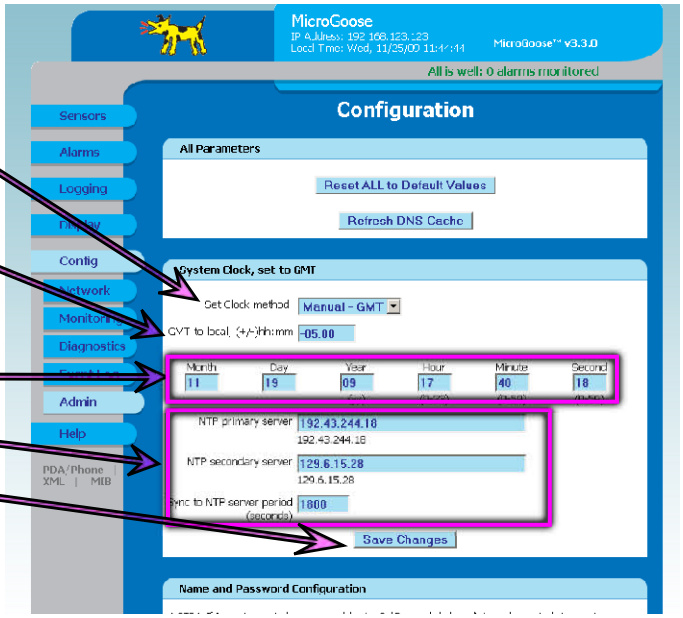
Instead, click on the ***Admin*** tab to switch to the ***Config: Admin Options*** page, where we will set the clock and password options.



To set the clock:

- For this first-time setup, "Set Clock method" to **`Manual`**.
- Ÿ Set the "GMT" to the correct offset for your local time zone. Make sure to type it in as shown; i.e. U.S. Central Time should be entered as **`-06:00`**, not merely **`-6`**, **`-6:00`**, or **`-06`**.
- Ÿ Enter the date and time in the fields provided.
- Ÿ For now, the "NTP" settings can be left alone.
- Ÿ Click the ***Save Changes*** button, and the clock will be set.

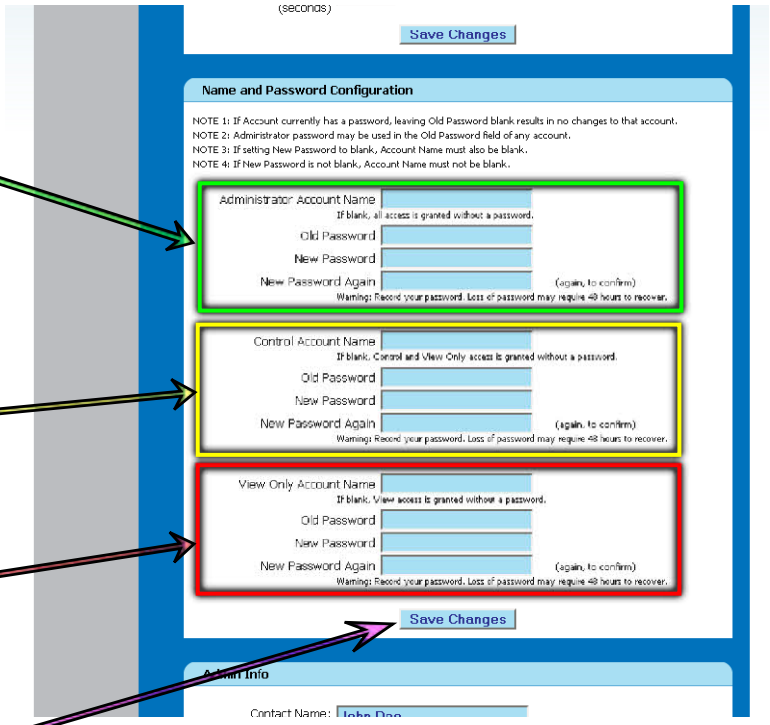
Note: currently, the MicroGoose does not automatically adjust for Daylight-Saving Time.



Now, scroll down the ***Config: Admin Options*** page until you find the ***Name and Password Configuration*** options block. Here, you can set up to three levels of password protection for the MicroGoose, allowing you to restrict which user(s) in your organization are able to view or change the unit's settings. Although these settings are optional, IT Watchdogs highly recommends that you at least set up the Administrator account to prevent unauthorized changes to the network and administrative settings.

If a given account's username and password fields are left blank, then the level(s) of access controlled by that account are available to anyone who connects to the unit. Accounts are listed in order of privilege, from highest to lowest, and lower-privilege accounts cannot be set unless the higher-privilege accounts above them are set as well; i.e. you cannot have a Control account without an Administrator account, and you cannot have a View-Only account without both a Control and Administrator account.

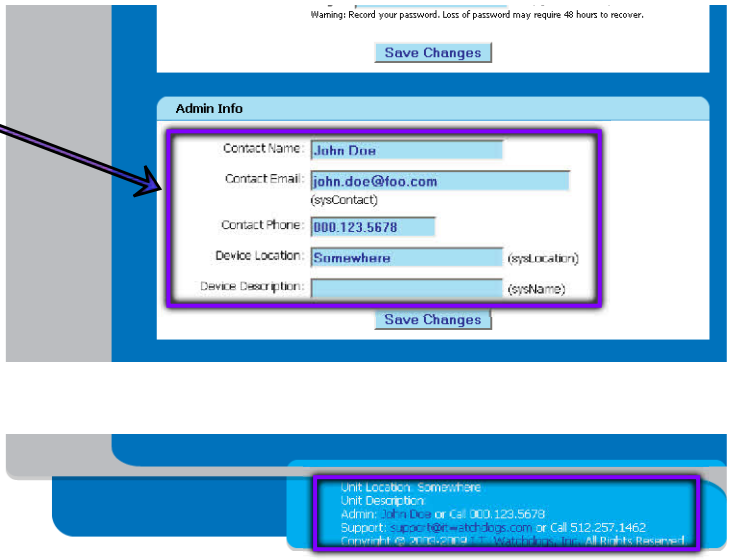
- **Administrator:** this account has complete access to the MicroGoose; all pages are viewable, and any setting can be changed – including the ability to change any other account's passwords. Note that this account is the only account which can access the ***Config*** page, and that you must configure this account before you can configure the **Control** or **View-Only** accounts.
- **Control:** this account is able to view all of the web pages except for the ***Config*** page, and is able to change alarm settings on the ***Alarms*** page.
- **View-Only:** this account is able to view all of the web pages except for the ***Config*** page, but is not able to change any settings.


(seconds)
Save Changes
Name and Password Configuration
NOTE 1: If Account currently has a password, leaving Old Password blank results in no changes to that account.
NOTE 2: Administrator password may be used in the Old Password field of any account.
NOTE 3: If setting New Password to blank, Account Name must also be blank.
NOTE 4: If New Password is not blank, Account Name must not be blank.
Administrator Account Name
If blank, all access is granted without a password.
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
Control Account Name
If blank, Control and View Only access is granted without a password.
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
View Only Account Name
If blank, View access is granted without a password.
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
Save Changes
Admin Info
Contact Name: John Doe

Once you have configured these accounts the way you want them, click the ***Save Changes*** button. If you have configured an Administrator account, the unit will now ask you to log in with that username and password before you can continue.

Next, scroll down to the ***Admin Info*** options block. These fields allow you to change the unit's administrative-contact information and specify its physical location, if desired. This information will be displayed at the bottom of each page, as shown.

Note that these fields are for your users' convenience only; the MicroGoose does not use the information entered here for anything other than to fill out the display at the bottom of each page, and to provide a clickable link to send the system administrator an e-mail. They may be filled out with any information you like, or even be left blank if you wish.



For the moment, the rest of the settings on the various ***Config*** pages can be left alone. Go ahead and click on the Network tab to go back to the Config: Network Settings page, and we'll configure the unit's IP and DNS settings for your network.

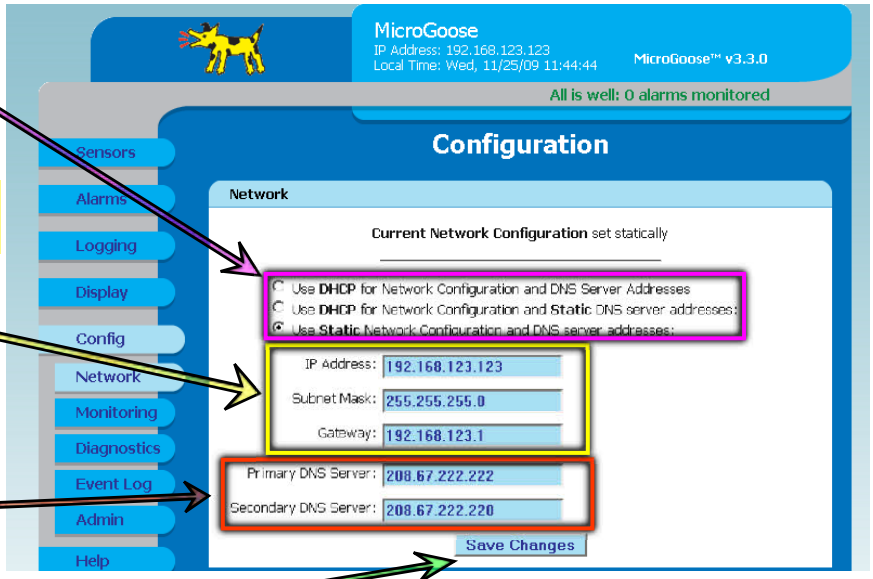
Ÿ ***Network:***

You can either assign your IP, Subnet Mask, and Gateway settings manually, or configure the unit to acquire these settings via DHCP from your network router.

Ÿ Here, you can choose how the unit gets its network-address assignment and DNS server settings. The unit can either attempt to acquire them via DHCP, or use static addresses you specify in the fields below. *Note: enabling any of the DHCP will override the static IP and/or DNS settings, so use caution!*

Ÿ Static IP network-address settings are entered into these boxes.

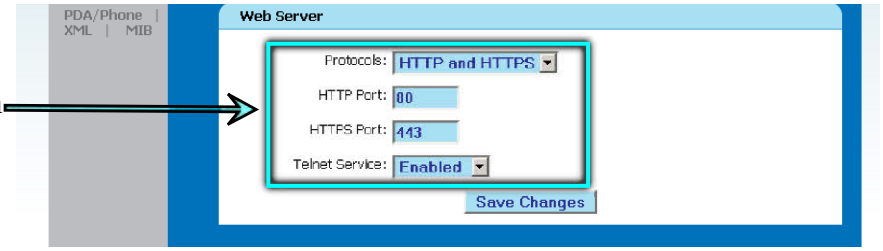
Ÿ Static DNS server settings are entered here. If you want to specify any other settings such as NTP time servers, e-mail servers, etc. via URL instead of by IP address, you will need to provide the address of at least one DNS server here.



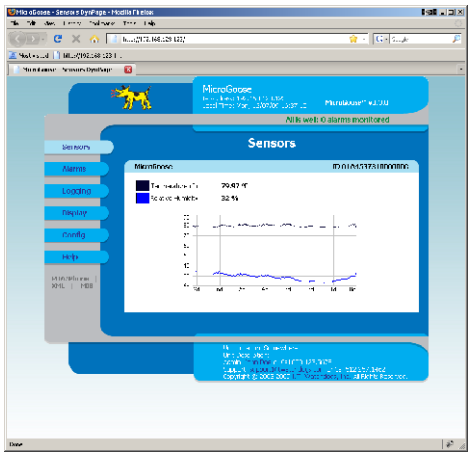
Click ***Save Changes***, and the unit will immediately switch to its newly-assigned IP address (or attempt to procure one via DHCP.) Note that depending on your current network-card settings, you may not be able to access the device at its new IP address until you install it in your network and change your computer's network-card settings back to the correct ones for your network.

Ÿ ***Web Server:***

For the moment, these settings can be left alone.

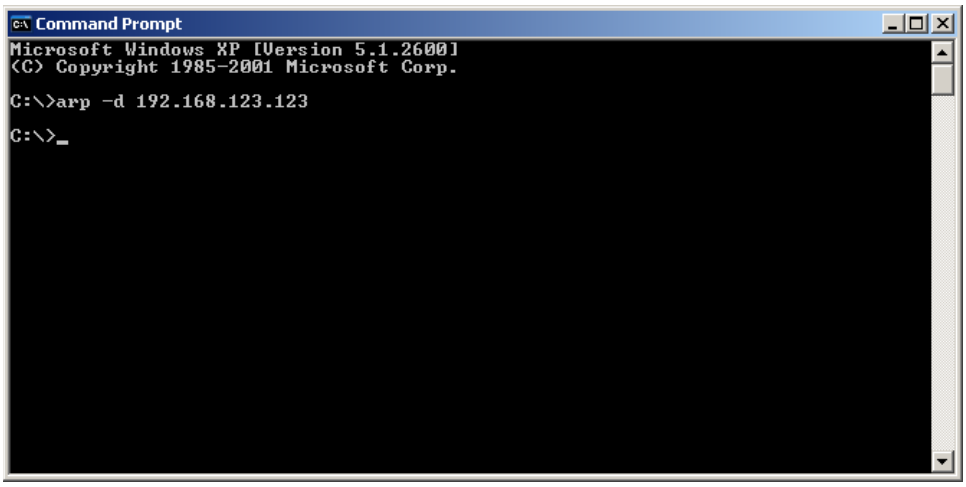


And that's it! Your new MicroGoose is now ready to mount in your server rack and begin logging data. In the following sections, we will cover each of the unit's functions in more detail and show you how to set up alarm thresholds, configure e-mail and SNMP alerts, sensor options, cameras, and all the rest.



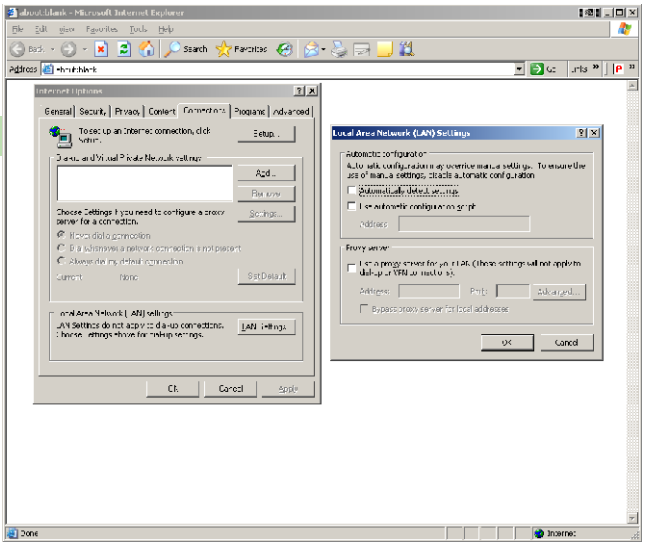
Note: if this is the first time the unit has been powered up, or if it has been left unpowered long enough for the clock's backup power source to run out, we recommend leaving the MicroGoose powered up for at least 1 hour before disconnecting it and moving it to another location, to give the backup-power capacitor sufficient time to recharge to full capacity.

TIP: if you are using a single PC to configure several MicroGoose units in a row, one after the other, you may find that some units appear slow or unresponsive when first connected to the PC. This is often caused by the operating system and network stack "remembering" the MAC ID of the previous unit at the 192.168.123.123 address, and continuing to try to send packets to that MAC instead of the current unit's MAC. This can be overcome either by waiting a few minutes for the "remembered" MAC to expire from the ARP table (this can take anywhere from 2 ~ 20 minutes, depending on your O/S and version), or by opening a command prompt and issuing the command **`arp -d 192.168.123.123`** to delete that IP address' entry from the ARP table. (In Windows, click ***START***, *"Programs"*, *"Accessories"*, then *"Command Prompt"* to open a command prompt; Mac OS/X and Linux users, refer to the help files for your particular systems on how to get to a command prompt or console window. The syntax of the **`arp`** command should be the same.)



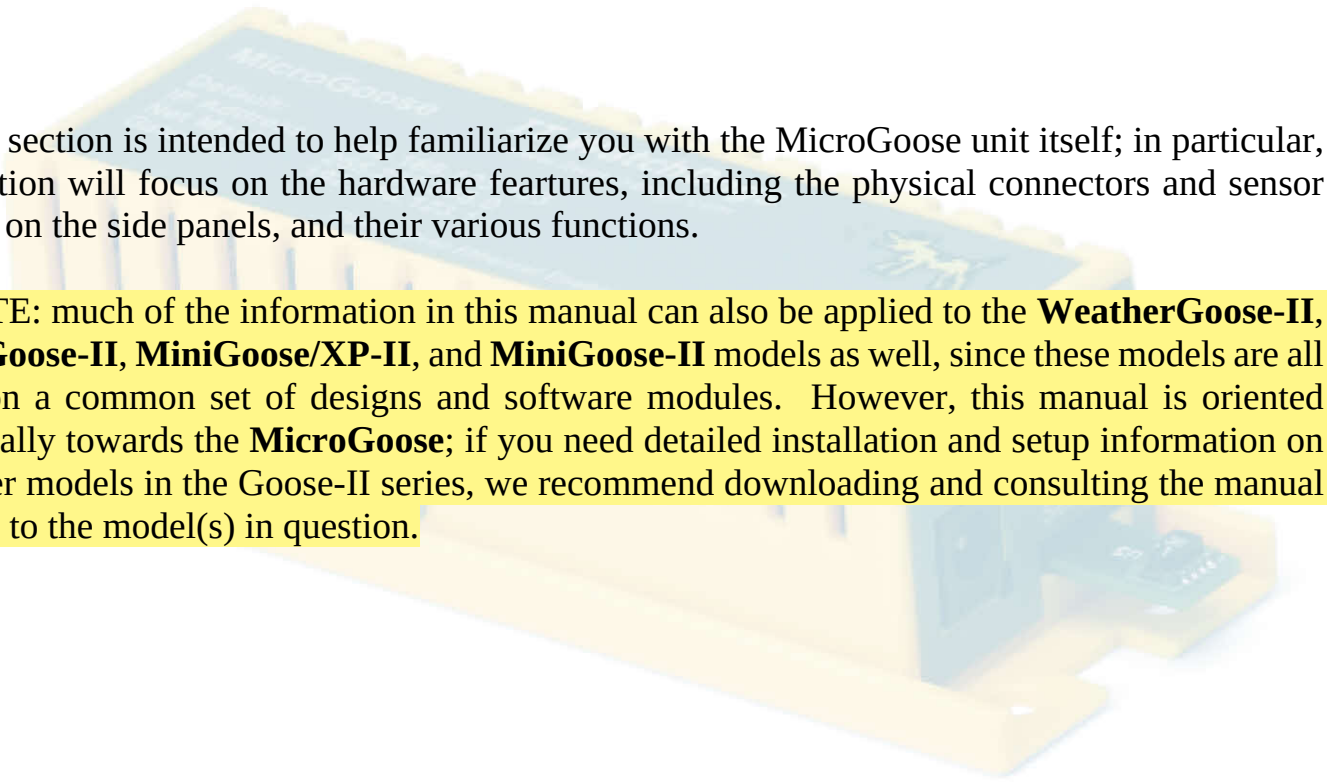
TIP: if you are unable to reach the MicroGoose from your web browser when the unit is directly connected to your computer via a crossover cable, try opening a command prompt as above and issuing the command **`ping 192.168.123.123`** to see if the unit responds. If the unit responds to pings, make sure your browser isn't set to use a proxy server; if it is, you may need to temporarily disable proxies in order to reach the unit over a direct connection.

- in **Internet Explorer**, the proxy settings can be found under *"Tools"* ► *"Connections"* ► *"LAN Settings"*
- in **Firefox**, the proxy settings are in *"Tools"* ► *"Options"* ► *"Advanced"* ► *"Network"* ► *"Settings"*
- in **Opera**, the proxy settings are in *"Tools"* ► *"Preferences"* ► *"Advanced"* ► *"Network"* ► *"Proxy Servers"*.)



MicroGoose USER MANUAL

Part 1 : The Grand Tour

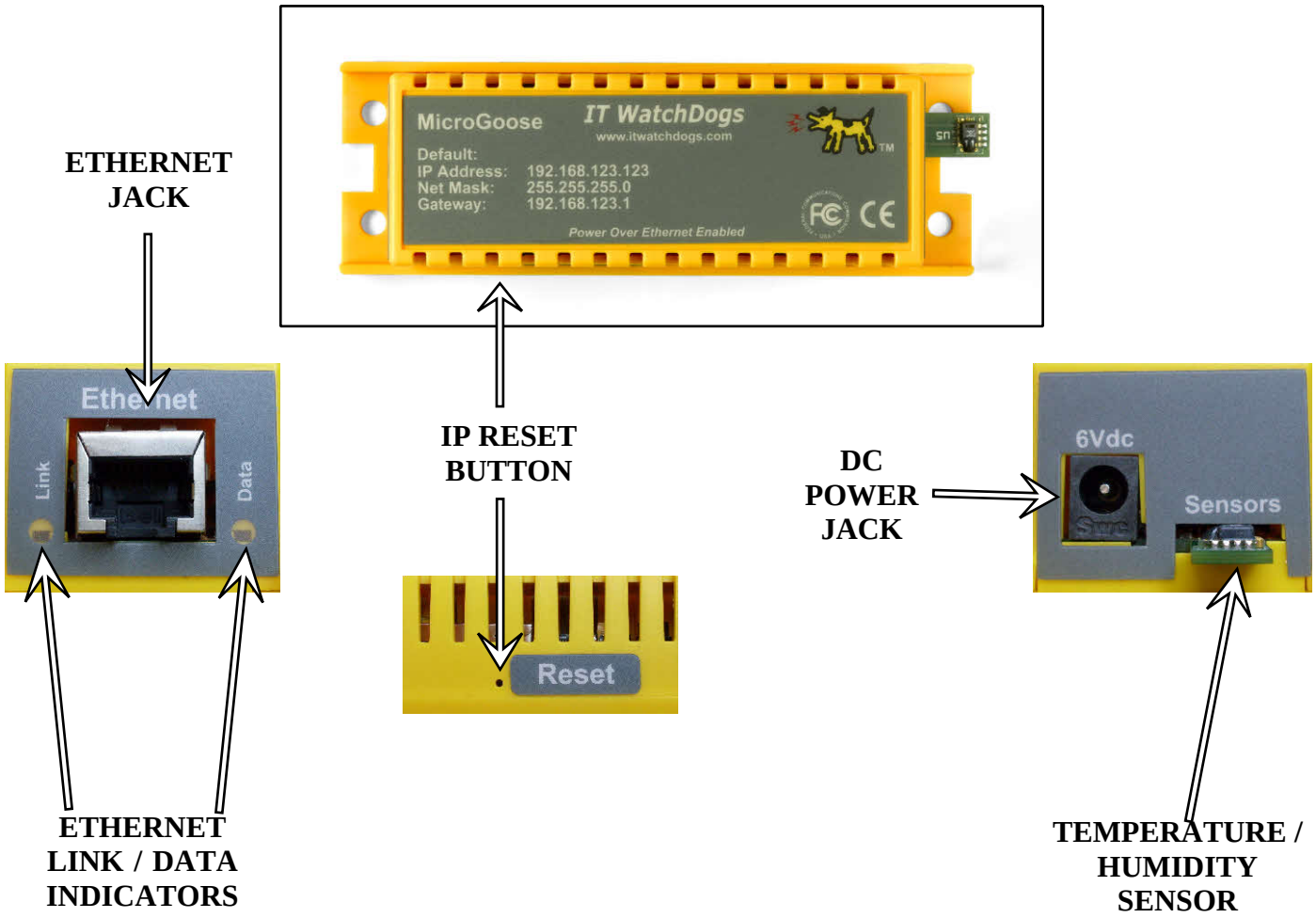


This section is intended to help familiarize you with the MicroGoose unit itself; in particular, this section will focus on the hardware feartures, including the physical connectors and sensor devices on the side panels, and their various functions.

NOTE: much of the information in this manual can also be applied to the **WeatherGoose-II**, **SuperGoose-II**, **MiniGoose/XP-II**, and **MiniGoose-II** models as well, since these models are all based on a common set of designs and software modules. However, this manual is oriented specifically towards the **MicroGoose**; if you need detailed installation and setup information on the other models in the Goose-II series, we recommend downloading and consulting the manual specific to the model(s) in question.

The MicroGoose unit is a compact module, about the size of a large candy bar, designed to be mounted in a variety of locations such as utility closets, work areas, storage areas, and other places where a larger rack-mountable unit might not fit, or where there may not even be a rack to mount it to in the first place. (Note, however, that our equipment has not been designed for outdoor use, or for use in extreme environments where it could be exposed to excessively high or low temperatures, chemical fumes, etc.) In addition, the MicroGoose unit supports Power-over-Ethernet (PoE) operation, making it even more convenient to locate several units at multiple locations within a larger facility without the need to worry about having a nearby power outlet; when used with a PoE injector or a PoE-capable network switch, a MicroGoose can be mounted anywhere you can string an Ethernet cable.

Like all of our WeatherGoose products, the unit's default network IP address information can be found printed on the unit itself. These are the settings the unit ships with from the factory, and to which it will return if the *IP RESET* button is used to revert the unit to its factory settings. Unlike our rack-mount units, however, the sensors and connection jacks are located on the ends of the unit, rather than on the front.



The four mounting holes in the plastic case are large enough to accommodate #8 or #10 screws. Note the ventilation slots running along both sides of the case – due to the unit's small size, which places the temperature sensor much closer to the power supply and CPU, it can be more susceptible to self-heating than its larger cousins, causing the temperature sensor to read several degrees higher due to the heat generated by the unit's own electronics, if the unit is mounted in areas with little or no ventilation or airflow, so keep this in mind when choosing a place to mount the MicroGoose.

Ÿ **DC Power Jack**:

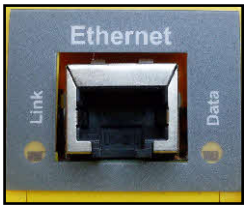
The MicroGoose runs on low-voltage DC power, supplied here via a standard DC barrel-plug connector. The unit's DC power requirements are as follows:

- *INPUT VOLTAGE:* **6 ~ 12 VDC**
- *CURRENT:* **approx. 350mA @ 6VDC, average.**
- *CONNECTOR TYPE:* **DC barrel plug, 2.1mm, center-positive**

The MicroGoose comes with a suitable wall transformer-style power supply. Note that the power supply which comes with the unit is capable of worldwide voltage (100 ~ 240VAC) and line-frequency (50 / 60Hz) operation; all that is required is an appropriate adapter to go from a U.S.-style plug to the appropriate non-U.S. socket. The power-supply unit is also suitable for use with power strips which provide 208VAC from IEC C-13 sockets connected across two phases of a 3-phase power system, which are becoming increasingly common in larger IT installations; again, all that is required is the correct socket adapter. Of course, if you are using the MicroGoose's Power-over-Ethernet feature, no DC power supply is required. (Should you accidentally connect both PoE and the 6V DC power supply to the unit at the same time, don't worry; the unit contains internal protection circuitry to prevent both power sources from being cross-connected and causing short circuits or damage to the unit.)

Other power-supply options for specific applications, such as -48VDC (positive-ground) telecom systems, may be available; check the IT Watchdogs web site or contact our sales department for assistance with these applications. Please note: Using any power-supply devices other than those supplied or recommended by IT Watchdogs may void your warranty!

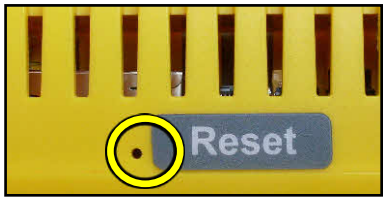
- **Ethernet Jack**



This is the MicroGoose's network connection, using a standard RJ-45 8p8c modular plug. The MicroGoose is compatible with 10Base-T and 10/100 networks, as well as with 10/100/1000-type Gigabit networks (i.e. networks which support fallback to 10Base-T and 10/100 operation). Note that the MicroGoose is not compatible with equipment which attempts to force 100Mbit-only or 1Gb/10Gb-only operation and does not support fallback to 10Mbit! Users of certain Cisco 1Gb/10Gb Gigabit routers, in particular, should beware of this when attempting to connect a MicroGoose into their Gigabit networks.

This jack also supports IEEE802.3af Power-over-Ethernet operation, if available. (Please note that the unit is not compatible with the various proprietary, non-IEEE methods of delivering DC power via Ethernet which some manufacturers implemented prior to the finalization of IEEE802.3af and still support for legacy purposes; any switch or router which the MicroGoose is connected to must support the standardized IEEE802.3af Power-over-Ethernet method.)

- ***IP RESET* Button**



Used to restore various settings on the MicroGoose back to their factory defaults. This can be useful if, for example, you accidentally lock yourself out of the unit by making a typo while changing a critical setting.

To perform a "simple" reset, use a paperclip or jeweler's screwdriver (using pens or pencils is not recommended, since ink or graphite particles could rub off and get into the unit) to press and hold the switch for about 15-20 seconds. Release the switch, and wait about 5 seconds for the unit to reboot. After a "simple" reset, the following settings will be reset to factory default:

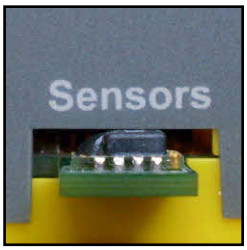
- ***Name and Password Settings:*** all three accounts (Administrator, Control, and View-Only) will be cleared.
- ***Network Settings:*** will be reset to the factory default of
  - **DHCP: `Disabled`** (*box unchecked*)
  - **IP Address: `192.168.123.123`**
  - **Subnet Mask: `255.255.255.0`**
  - **Gateway: `192.168.123.1`**

- ***Web Server:*** will be reset to the factory default of
  - **Protocols: `HTTP and HTTPS`**
  - **HTTP Port: `80`**
  - **HTTPS Port: `443`**

The RESET button can also be used to perform a "total" factory reset, if necessary. Normally, there is no need to use this procedure simply to regain access to the unit, but it might be useful if you were, for example, moving the unit from one facility to another and wanted to start over with a "blank slate", as it were.

To perform a "total" reset, disconnect power from the unit, then press and hold the RESET button as above while powering the unit back up again. Continue to hold the button for 5 seconds, then release it and let the unit reboot as normal. CAUTION: This will completely erase every setting on the MicroGoose back to its factory default, including all of the ***Alarms***, ***Logging***, and ***Display*** settings as well as ***Config***!

- **Temperature / Humidity Sensor Tab:**

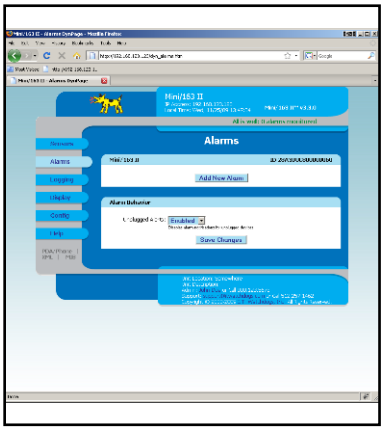


The MicroGoose has a single, permanently-mounted temperature-and-humidity sensor, located on a small tab which extends from the unit next to the DC power jack. This is the same chip as the one found on our standard WeatherGoose-II and SuperGoose-II units, so it has a similar level of accuracy – although, as noted above, it can be subject to picking up the heat of the unit's own electronics under some conditions due to the compact size of the unit placing the sensor so close to the power supply and CPU. The best solution to this problem is to make sure the device is located in an area with sufficient ventilation and airflow around the unit; however, if this is not possible, there is a way to apply a compensating offset to the readings, which we will cover in the next section.

- ***Sensors* page**

This is the page that the unit will default to when accessed by its IP address. There are no user- or administrator-adjustable settings on this page; it merely displays the current readings and historical graphs of the MicroGoose's internal sensors. The tabs along the left-hand side of the page provide access to the rest of the MicroGoose's functions.

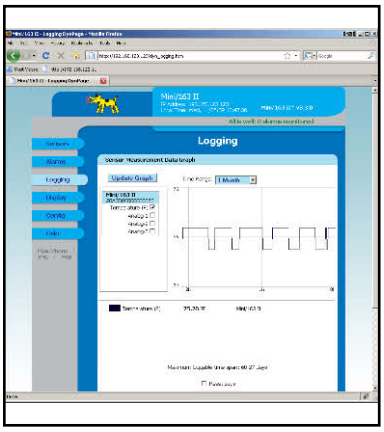
You can also download the unit's SNMP MIB file from this page, via a link underneath the page tabs.



- ***Alarms* page**

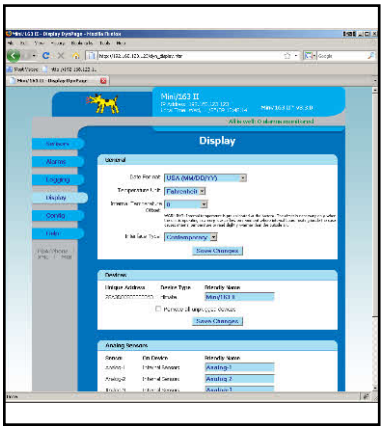
From here, you can add or remove alarm thresholds which will cause the unit to send e-mails, SNMP traps, and/or activate the audible alert buzzer (*SuperGoose-II only*) if any of those thresholds are exceeded.

The MicroGoose alarm system has several significant enhancements over the original WeatherGoose-I, including the ability to set multiple thresholds for any given sensor and selectively determine which of up to five e-mail address(es) and/or up to two SNMP listeners should receive alerts for a particular condition.



Ÿ ***Logging* page**

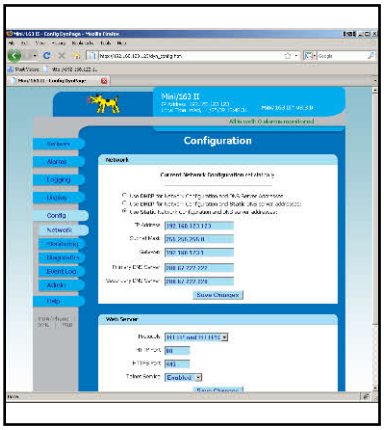
On this page, you will find a larger graph which can be customized to display only the sensor(s) of interest to you, and to display their history for periods ranging from 15 minutes up to 1 month. You can also download and/or erase the log history from this page, if desired; logs are downloadable in a standard CSV (comma-separated values) format which can be imported into a variety of spreadsheet and data-analysis applications.



- ***Display* page**

This page allows you to control the way various items are displayed, including the date format (USA, non-USA, or ISO-8601), unit of temperature measurement (Farenheit or Celsius), and to assign "friendly" names to each sensor (and to the MicroGoose unit itself) to more easily differentiate them on the various pages.

You also have the option to choose from several different user-interface styles, or "skins", depending on your preferences. All of the screenshots in this manual are from the default "Contemporary" skin, but other options are available, including "Austere" and "Goose Classic."

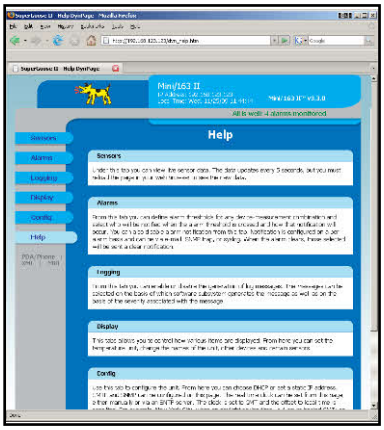


- ***Config* page**

This page provides access to all of the MicroGoose's system and network configuration options, including the real-time clock, SNMP and e-mail settings, account password settings, and camera options.

You can also send test e-mails and SNMP traps from here, reset the entire unit to factory defaults, upload firmware upgrades, and access some self-diagnostic syslog functions if you suspect your unit is not operating correctly.

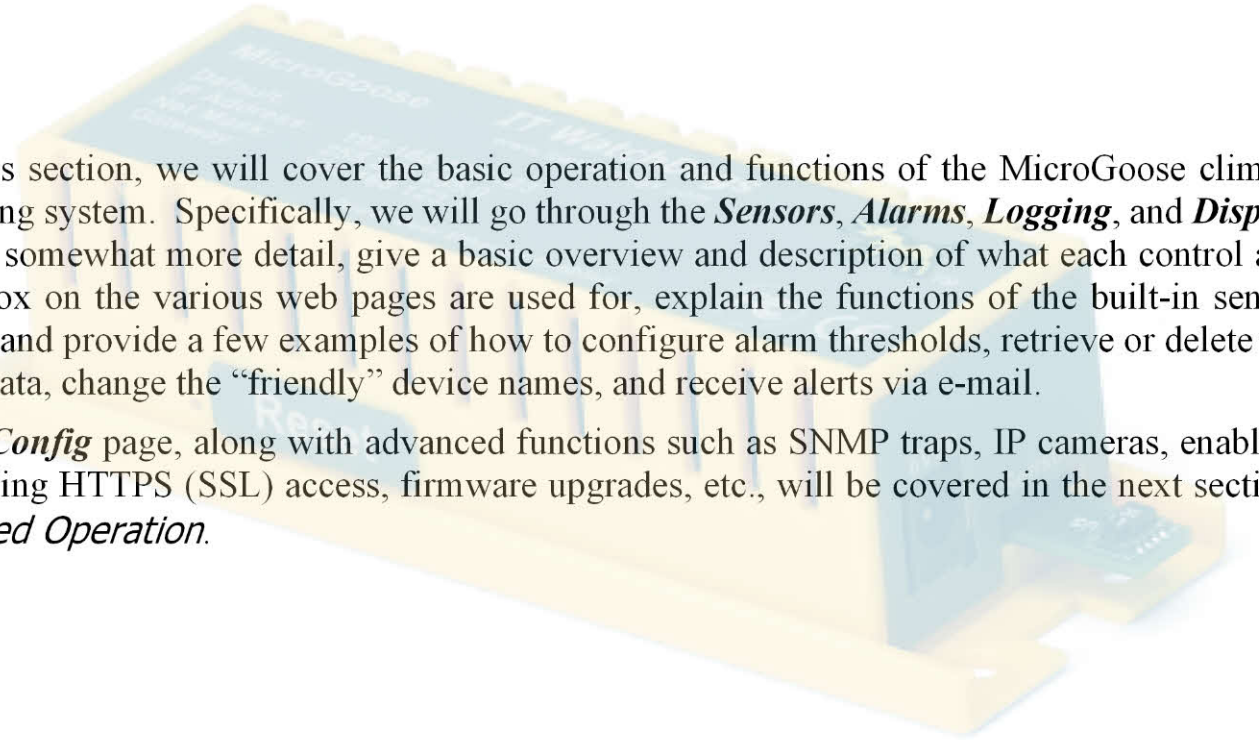
Since there are a lot of settings available on this page, it is further divided down into sub-pages for ease of access.



- ***Help* page**

Provides a basic description of the MicroGoose's functions.

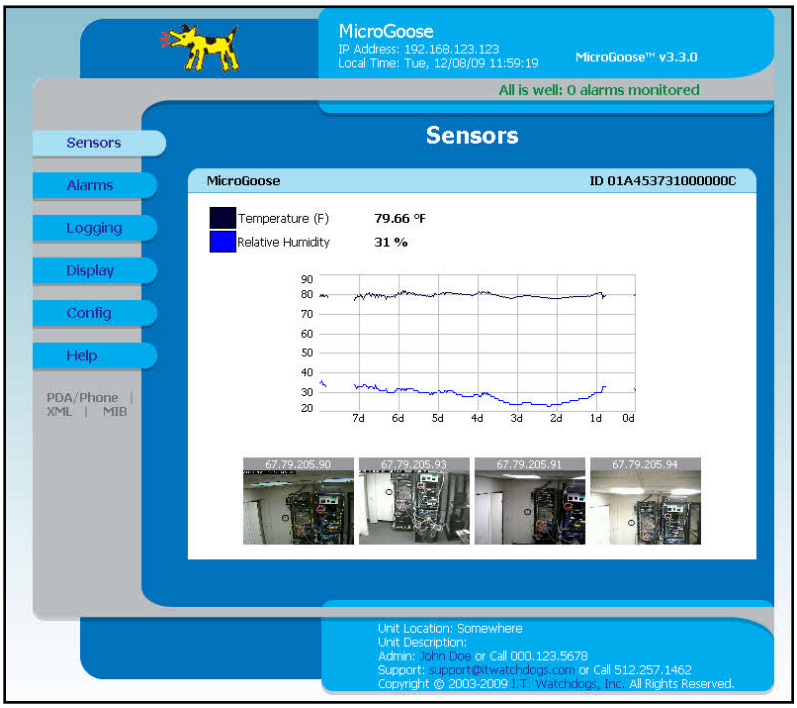
Part 2 : Basic Operation



In this section, we will cover the basic operation and functions of the MicroGoose climate monitoring system. Specifically, we will go through the ***Sensors***, ***Alarms***, ***Logging***, and ***Display*** pages in somewhat more detail, give a basic overview and description of what each control and dialog box on the various web pages are used for, explain the functions of the built-in sensor devices, and provide a few examples of how to configure alarm thresholds, retrieve or delete the logged data, change the "friendly" device names, and receive alerts via e-mail.

The ***Config*** page, along with advanced functions such as SNMP traps, IP cameras, enabling or disabling HTTPS (SSL) access, firmware upgrades, etc., will be covered in the next section, *Advanced Operation*.

Ÿ The ***Sensors*** Page



This is the first page you will see whenever you access a MicroGoose by its assigned IP address or URL. Here, you can get an at-a-glance view of every sensor being monitored by your particular unit, along with the unit's name and IP address, local time, firmware version and, as we will see later in the *Advanced Operation* section dealing with *Configuring and Using IP Cameras*, the still-image snapshots of any IP cameras the unit has been configured to include in the display.

The screenshot shown at right is an example of a fairly typical application consisting of a MicroGoose plus four IP cameras. The current readings are displayed at the top, along with the name and type of reading, and a color key to let you match each sensor reading to the history graph displayed underneath. Note that this graph is not configurable or customizable; it will always display both the temperature and humidity graph traces across however long the unit has been in operation, up to the limits of the unit's memory.

Below the graph are the thumbnail images for up to four IP cameras, if configured. (If no cameras are configured, no thumbnails will be displayed.) The thumbnails display the IP address of each camera, plus a still-image snapshot. Note that these thumbnails do not display live motion images; to see the camera "live", click on the camera's thumbnail image, and your browser will open a new tab or window and connect directly to the camera. Also note that the MicroGoose does not perform any monitoring, processing, or logging of the camera images; any motion-detection alarms or video recording must be handled directly by the camera and/or by its provided application software (if any).

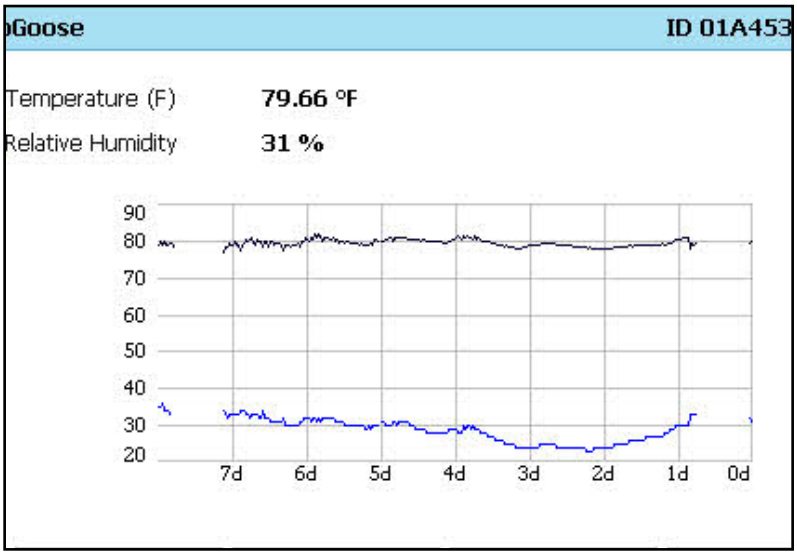
At the top of this (and every other) page, you will see a banner similar to this one. The unit's "friendly name" is prominently displayed in large type; this name can be changed on the ***Display*** page to help you determine which unit you're looking at if you have more than one Goose in your facility. Below the unit's name, you'll see its current IP address and the current time and date; to the right, the unit's model and current firmware revision. Below these, there's an at-a-glance summary of the current alarm state; when all the sensors are within their normal range, it will display "All is well" and the number of alarm conditions being watched in green type. (In this case, "0 alarms monitored" indicates that we haven't configured any alarm thresholds yet.) If a sensor exceeds its alarm threshold, the text will turn red and display the number of alarm conditions; also, its displayed value will turn from black to red. (More about this in a moment.)

Unit Location: Somewhere
Unit Description:
Admin: John Doe or Call 000.123.5678
Support: support@itwatchdogs.com or Call 512.257.1462
Copyright © 2003-2009 I.T. Watchdogs, Inc. All Rights Reserved.

Each unit also displays its administrative information at the bottom of each web page. This area is filled in by the ***Admin Info*** fields on the ***Config: Admin*** tab, which we touched on briefly in the *QuickStart Setup Guide*, and will go into more detail upon in the section devoted to the ***Config*** pages.

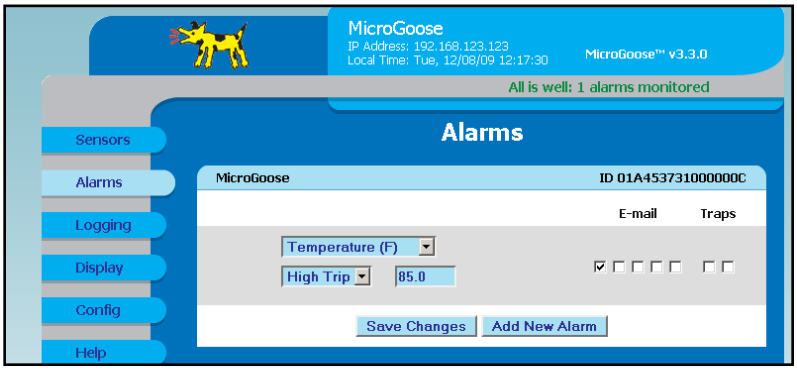
Along the left-hand side of the page, you'll see a column of labeled buttons. These allow you to switch between the various system pages to set alarms, change the logging and display settings, or configure the unit. Just below the last button, you'll see some smaller links labeled "PDA/Phone", "XML", and "MIB". These special-function links let you jump to a smaller, simpler page more suitable for PDA and cell-phone browsers, download an XML document containing the unit's current state (useful if you want to write your own scripts or

programs to accumulate and process the sensor readings or take action on them), and download a .ZIP file containing the correct SNMP MIB file for your unit.



You may have noticed that in the sample images above, both of the sensor graphs have visible gaps in them. Normally, the graphs should be continuous; visible gaps in the graphs generally indicate that the unit has lost power. (Which is, in fact, the case in the screenshots shown here; the test unit these screenshots were taken from was deliberately powered down a few times to demonstrate this effect.) Due to the way the MicroGoose writes data to the internal memory chip, even a short power outage can cause a visible gap; in order to extend the life of the Flash memory, the unit holds the most-recent readings in temporary RAM, and does not write them to the Flash chip until it has accumulated enough to fill an entire “page”. So, if power goes out between page writes, any data held in RAM but not yet written to Flash may be lost. Typically, a MicroGoose will take about 30 minutes to fill a page.

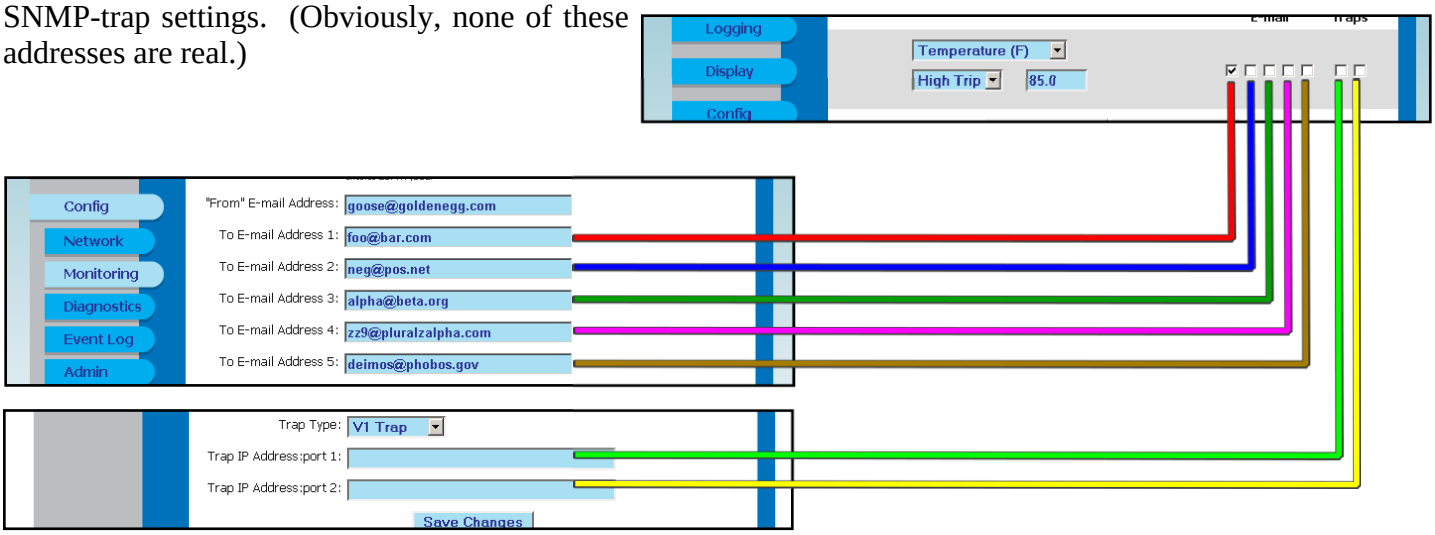
Ÿ The ***Alarms*** Page



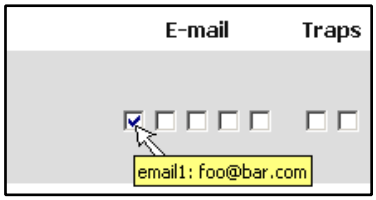
This is where you can set up alarm thresholds for each sensor attached to your MicroGoose. To our customers who are familiar with our previous WeatherGoose-I system, you will find that there have been a lot of changes! Unlike the older system, the MicroGoose allows you to set multiple alarm points for each sensor, and selectively determine where the alerts are sent, making it easy to set up an escalating series of alerts for a single condition, or send different kinds of alerts to the personnel or departments best suited to deal with them. As before, you can also selectively set off SNMP traps.

As you can see in the screenshot above, this MicroGoose currently has a single alarm configured; if the internal temperature sensor exceeds 85.0°F, an e-mail will be sent to the address that corresponds to **`email1:`** on the ***Config: Monitoring*** page.

We'll deal with setting up e-mail addresses and SNMP trap destinations later, but since this is a major new feature in the MicroGoose, we'll go ahead and take a brief look at ***Config: Monitoring*** to see how the checkboxes relate to the settings on that page. Here, to the right, we see a single sensor alarm entry; below, we see the relevant sections of the ***Config: Monitoring*** page. The colored lines show how each checkbox connects to the e-mail and SNMP-trap settings. (Obviously, none of these addresses are real.)



As you can see, the checkbox assignments are fairly straightforward; **`email1:`** through **`email5:`**, then **`trap1:`** and **`trap2:`**, numbered left to right.

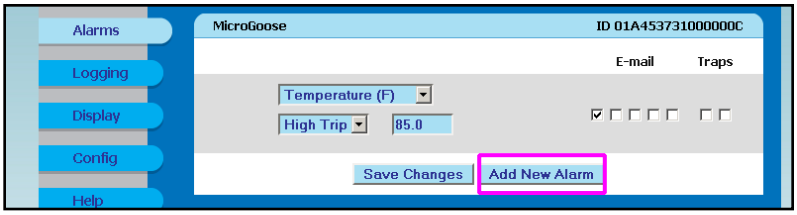


But don't worry, you won't have to try to remember the configured e-mail addresses in your head; as seen in the picture at right, if you roll your mouse pointer over a checkbox, a pop-up tip will appear to remind you which e-mail address or SNMP trap destination that checkbox controls.

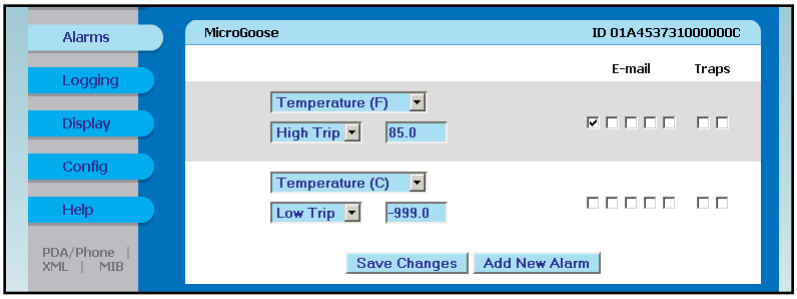
So, now that we've gotten that out of the way, let's go through the process of adding new alarms settings and see how it all works!

Currently, in the examples shown so far, we have a single alarm set; this one will send an e-mail alert to the **`email1:`** address, **`foo@bar.com`**, whenever the internal temperature sensor exceeds 85°F. But what if the temperature continues to rise? Let's say we want to be alerted again if we exceed 90°F; and this time, we not only want **`foo@bar.com`** to know about it, we want our building-maintenence supervisor at **`neg@pos.net`** and the HVAC technician at **`zz9@pluralzalpha.com`** to know about it as well, and send an SNMP trap to our SNMP monitor at **`lobsterpot.com`**.

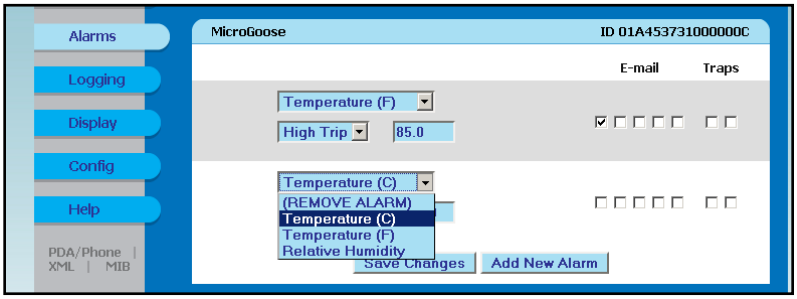
1. First, we click the ***Add New Alarm*** button highlighted here.



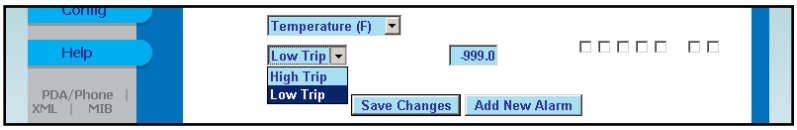
2. Notice how a new entry has been added to the **SuperGoose II** alarm table. New entries are generally filled in with defaults that are well outside the range of normal sensor operations; in this case, our new alarm is set to trip if the temperature goes below -999°C, which is an impossible condition. (Literally so since "absolute zero", the point at which all molecular activity theoretically halts, occurs at only -273.15°C!) This is by design, as it keeps the MicroGoose from erroneously trying to send alarm messages or traps before you've had a chance to configure the alarm thresholds.



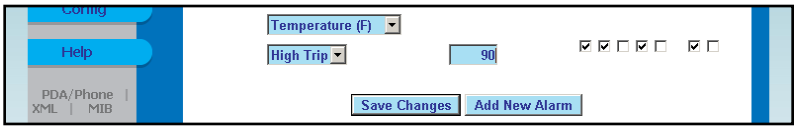
3. The first drop-down box will give you a list of all of the conditions you can monitor via the MicroGoose's internal sensor. Notice that there's also an option to remove alarms; we'll get to this in a minute. For now, we'll pick "**Temperature (F)**", to set an alarm threshold on the MicroGoose's internal temperature sensor, in Fahrenheit.



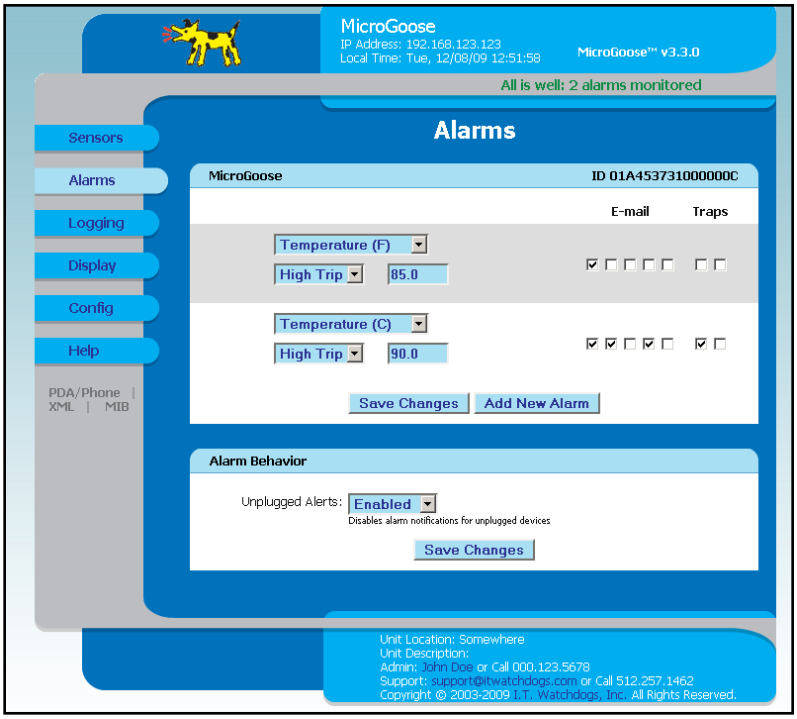
4. Next, we choose whether we want this alarm to be a "Low Trip" or a "High Trip." The distinction is just like it sounds; a "Low Trip" alarm will send alerts if the monitored condition falls below the threshold value that we set, while a "High Trip" alarm goes off if the monitored condition rises above the threshold. So, to get our alert if the temperature exceeds 90F, we select "**High Trip**" from the second drop-down box.



5. Next, we type 90 as our alarm-trip threshold, and put checkmarks in the desired alarm and SNMP boxes; in this case, we select **`email1:`**, **`email2:`**, **`email4:`**, and **`trap1:`**, which correspond to **`foo@bar.com`** (our system administrator), **`neg@pos.net`** (our building supervisor), **`zz9@pluralzalpha.com`** (our HVAC technician), and our SNMP monitor at **`lobsterpot.com`**.



6. Now, we click ***Save Changes***, and just like that, now we have a new alarm setting in the **MicroGoose** table! Now, whenever our temperature exceeds 85°F, our sysadmin will get a message; if the temperature climbs about 90°F, not only does the sysadmin get another message, but our building-maintenence supervisor and the HVAC technician or service company get e-mails as well, and we also set off an SNMP trap to our network monitor.

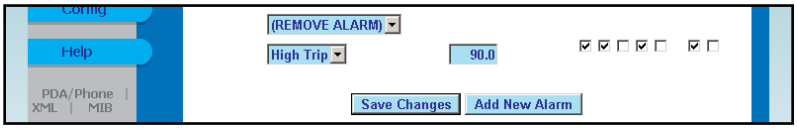


More alarm thresholds – up to a maximum of 200 – can be added, simply by clicking the appropriate ***Add New Alarm*** button for the sensor or sensor group you wish to add a new alarm condition to. If you attempt to add another alarm past the 200th, an error message will appear stating that you're trying to set more alarms than the MicroGoose can support and no new alarm entry will appear on the page.

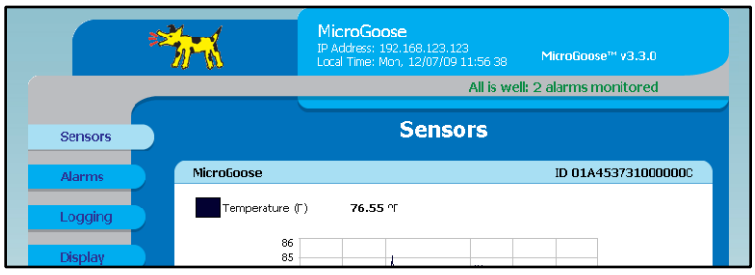
Note that the alarm entries are not sorted in any particular order! They simply appear in the order in which they were added. Keep this in mind if you intend to add a large number of escalating alerts to any particular sensor, as long lists of alarms added in random order can quickly become unwieldy and difficult to manage.

Alarms can be changed at any time. Let's say we'd rather have our initial alert go out at 80°F instead of 85°F. Nothing could be easier – just click the cursor on the numerical box for that alarm, then type in the new threshold and click ***Save Changes***. Likewise, if we decide we'd like to bring the building-maintenance person into the loop on that first alarm, rather than waiting for it to escalate, just check the appropriate e-mail box and ***Save Changes***. You can even change multiple alarm thresholds and settings all at once; again, just remember that each ***Save Changes*** button only acts on the alarm settings within its particular sensor group, not globally.

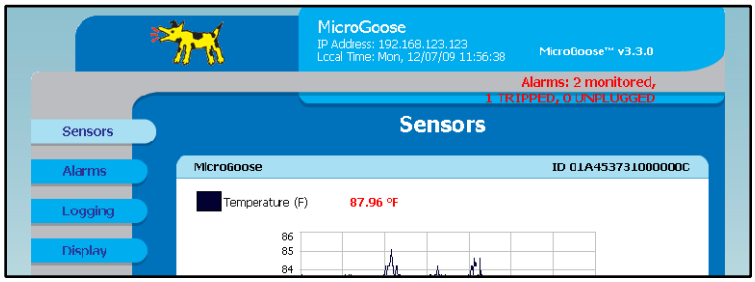
If a particular alarm is no longer wanted or needed, there is an option at the top of the sensor-measurement drop-down list which says "**(REMOVE ALARM)**". Select this option and click ***Save Changes***, and the unwanted alarm will be deleted from the list.



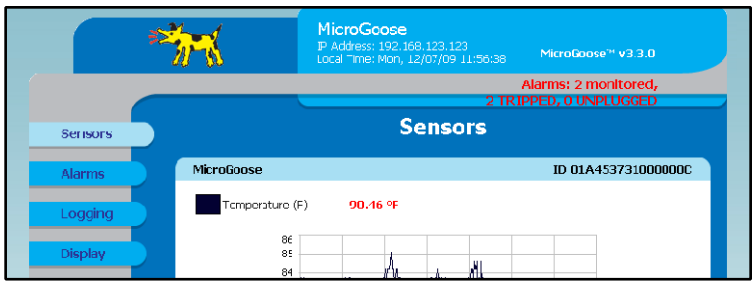
Now, let's see what happens when an alarm exceeds its threshold. Currently our ambient temperature, according to the MicroGoose's internal temperature sensor, is 76.55°F. The ***Sensors*** page reports "All is well: 2 alarms monitored", and all the values are black, indicating that all of the sensors are within the threshold(s) we've set. Let's see what happens when we warm things up a bit.



The temperature has climbed to 87.96°F. Now, the top-banner summary reports "Alarms: 2 monitored, 1 TRIPPED, 0 UNPLUGGED", and the internal temperature sensor's numeric reading has turned red to indicate that it is currently in an alarm condition. The unit has also sent an e-mail to our sysadmin.



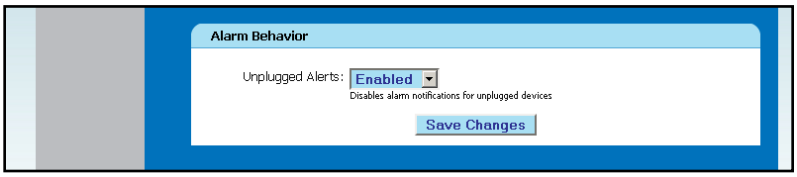
(Note that on the MicroGoose, the "unplugged" status is meaningless since this model does not support external add-on sensors.)



The temperature continues to rise; now, at 90.46°F, it exceeds our second alarm threshold. Since the temperature is now higher than both of our alarm thresholds, the top-banner summary reports "Alarms: 2 monitored, 2 TRIPPED, 0 UNPLUGGED". The internal temperature sensor's numeric reading is still red, and the unit has now tried to send another e-mail, this time to our building-maintence supervisor and HVAC technician as well as to our sysadmin, and has sent an SNMP trap to our SNMP monitor.

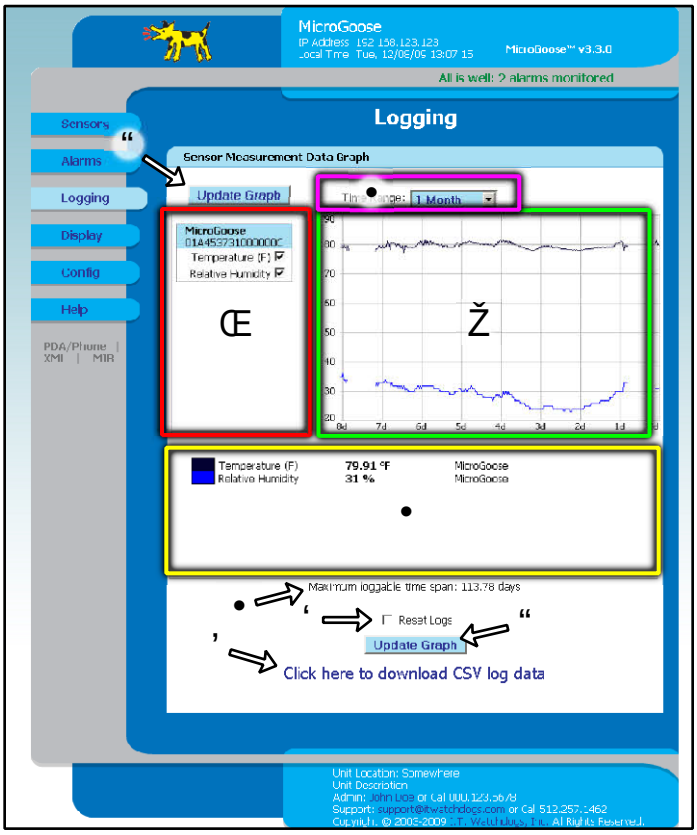
Note that the alarm settings in the ***Alarms*** page all function independently of each other; i.e. any sensor exceeding any of its associated alarm threshold(s) will trip that alarm and cause the action(s) selected by the checkboxes, regardless of whether any other sensors are currently in alarm or not.

A final note on alarm thresholds, before we move on: you may have noticed that the drop-down box included both a "**Temperature (F)**" and a "**Temperature (C)**" option. These allow you to specify an alarm state in either unit of temperature measurement, and it is important to keep in mind that these operate independently of the ***Temperature Unit*** setting on the ***Display*** page! The MicroGoose automatically keeps track of and converts alarm thresholds and temperature measurements to the appropriate units internally, so if – for example – you were to set an alarm at **`85°F`** while the ***Temperature Unit*** was set to display in **`Fahrenheit`**, and then later changed the ***Temperature Unit*** to display in **`Celsius`** instead, the alarm will still trip at the "correct" temperature of 29.4°C even though the alarms page will still show the original setting of **`85°F`**.



The final set of controls to be covered on the ***Alarms*** page is the ***Alarm Behavior*** section. Currently, this section has a single control, Unplugged Alerts, which has two options: Enabled, or Disabled. This control normally determines whether or not a series-II Goose unit sends out alarm messages when it loses contact with an external sensor device – however, on a MicroGoose unit, this control will not do anything since the MicroGoose does not support external sensors, so this control can and should be left alone.

Ÿ The ***Logging*** Page

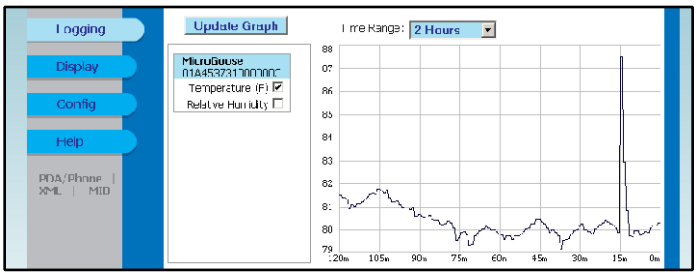


The next stop on our tour of the MicroGoose system is the ***Logging*** page. Here you can examine your logged data in greater detail, by selectively changing the graph's time scale or removing traces from the graph so that only the measurements of interest are displayed. You can also download the logged data, or erase it from the unit's memory, as desired.

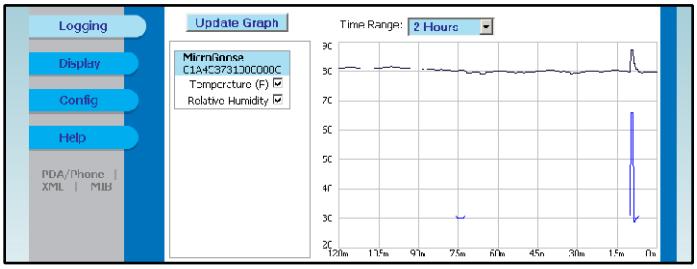
Let's take a brief overview of the various items on this page, and then we'll demonstrate a couple of examples on how to use them.

1. This group of checkboxes controls which measurements are displayed on the graph.
2. The ***Time Range*** drop-down box lets you change the horizontal time-scale of the graph, letting you view the past history anywhere from the past 15 minutes up to the past 30 days, assuming the unit has that much data accumulated in its memory.
3. This graph displays the selected measurements across the selected time scale. The vertical scale always automatically adjusts to fit the upper and lower bounds of the data being displayed, while the horizontal scale will either be the time range selected in the drop-down box above, or the length of time for which the unit actually has data in its memory, whichever is less.
4. This provides a color key to the graph above it, showing which colored lines correspond to which sensor device(s) and measurement(s).
5. This message, located directly underneath the color key, tells you the maximum amount of data that can be logged before the memory is full. Once the MicroGoose's memory capacity has been reached, each time a new data sample is taken, the oldest sample(s) in the buffer will be discarded to make room the new one.
6. The ***Reset Logs*** checkbox will cause the MicroGoose to erase all of the currently-logged data from memory. If this checkbox is set when the ***Update Graph*** button is clicked, the data is erased, the graphs are cleared, and the unit will begin accumulating new data. Caution: there is no "undo" feature or "recycle bin" that will let you recover the data once erased, so don't select ***Reset Logs*** and click ***Update Graph*** unless you're very sure this is what you want to do!
7. Clicking on this link will cause your browser to download all of the accumulated data in a file called datalog.csv. This type of file, known as a comma-separated-values format (hence, the .csv extension), contains the logged data in a simple ASCII text format which can be opened by nearly any spreadsheet program (such as Excel, Quattro Pro, or OpenOffice Calc) or data-analysis software. Note that depending on how long the unit has been in operation, downloading the log may take several minutes; however, the MicroGoose will continue to monitor sensors and alarm conditions during the download process.
8. None of the above controls or checkboxes will take effect until one of the ***Update Graph*** buttons is clicked. Two buttons, one at the top of the page and one at the bottom, are provided simply for the user's convenience, so that you don't have to scroll all the way up or down the page to find them; there is no difference between the two.

Currently, our example unit is set to display a month's worth of data. However, this particular unit hasn't been running for a month; in fact, at the time these screenshots were taken, it had only been running for slightly over 8 days. So, as you can see in the image to the right, the horizontal scale has adjusted accordingly, to show all of the data currently available. Now let's see what happens when we change the scale to a shorter time scale – say, the last two hours:



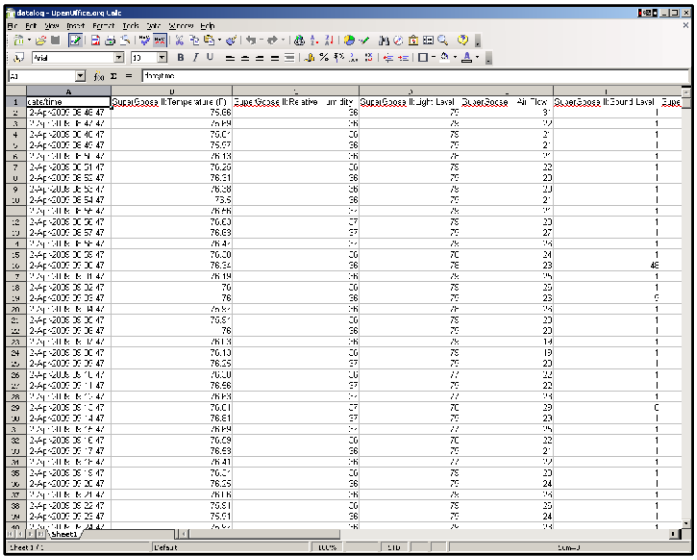
We use the ***Time Range*** drop-down box to select the "**`2 hours`**" range, then click ***Update Graph***. The MicroGoose obligingly redraws the graph, showing us the previous two hours' worth of data. (The rest of the data still exists in the system's memory, of course; it's simply "off screen.")



Currently, the example unit is graphing the unit's internal temperature sensor. But let's say we want to see the humidity as well. We simply move the mouse pointer to the measurement-selection checkboxes, check the "**Relative Humidity**" box, then click ***Update Graph***...

The graph is redrawn again with the selected measurements shown in the graph. And just like that, our new measurements are added to the graph and color key. Notice how the new measurement extends all the way across the graph, even though we only just now asked for it to be graphed? That's because the checkboxes do not change which measurements are logged, only those which are shown on the graph. Every measurement taken by every sensor is always logged in the unit's memory, continuously, regardless of the checkbox settings.

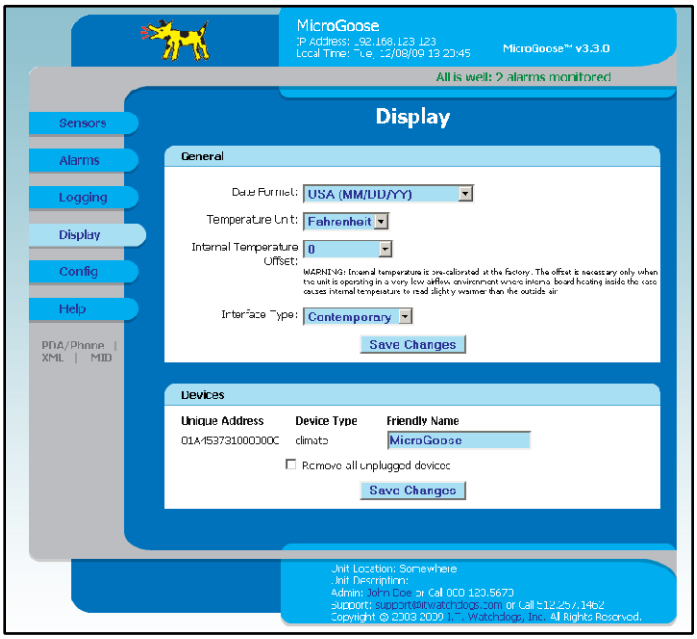
Clicking on the "***Click here to download CSV log data***" link will cause your browser to download the accumulated log history. (Be patient; depending on the amount of data in memory, this could take a few minutes!) As mentioned before, this file is in a plain-text ASCII format known as "comma-separated values", which nearly any spreadsheet or data-analysis program likely to be found on the Windows, Mac, or Linux platforms should be able to import easily. When opened, the result will look much like the screen-shot to the right. (This particular shot was taken using the OPENOFFICE CALC spreadsheet, but other spreadsheet programs should look similar.)



Depending on the spreadsheet program, you may be asked to provide some details about the data format so that it can be properly imported. If any of the following parameters are asked for, be sure to set them as follows:

- ***Character set***: **`Western Europe (Windows-1252/WinLatin 1)`**, or **`Western Europe (ASCII-US)`**
- ***Separator options***: **`Separated by Comma`**

Ÿ The ***Display*** Page



This page allows you to change the way in which the MicroGoose displays various readings. It is divided into two sections: ***General***, and ***Devices***.

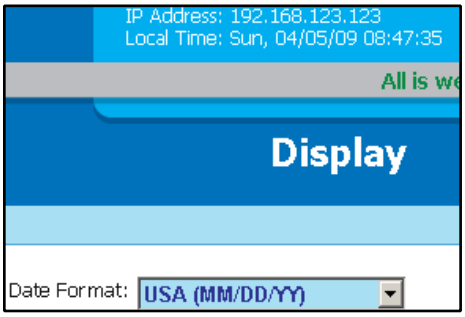
The ***General*** section allows you to change some aspects of the user interface such as the way dates are displayed, the unit of temperature measurement, and even switch between one of four different web-page styles. This last feature can be particularly useful to those users who intend to primarily access their MicroGoose units remotely via devices with lesser graphics and memory capability than a full PC, such as a web-capable cell phone or a "netbook" computer, and would therefore prefer a simpler layout than the default.

The ***Devices*** section allows you to assign more meaningful "friendly" names to the MicroGoose unit, to make them easier to identify if you have multiple units to be monitored.

Let's go through each section in turn.

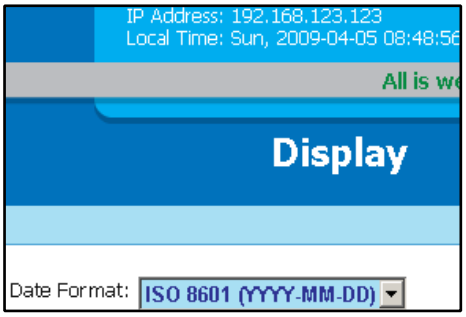
Ÿ ***General*** section:

There are four controls underneath the ***General*** section. The first one, labeled ***Date Format***, gives you control over how the current date is displayed at the top of each page. You have a choice of three settings:



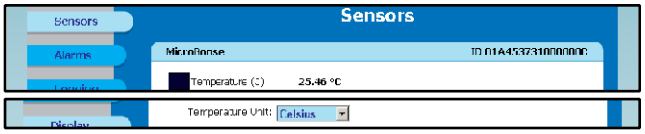
standard USA format
(MM/DD/YY)
2-digit month, day, and year, separated by slashes /

Non-USA (world) format
(DD.MM.YY)
2-digit day, month, and year, separated by periods .

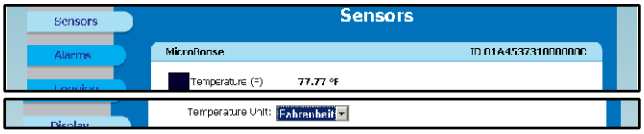


ISO 8601 format
(YYYY-MM-DD)
4-digit year + 2-digit month & day, separated by dashes -

The next control, ***Temperature Unit***, is straightforward enough; it simply allows you to change the unit of temperature measurement between **Fahrenheit** and **Celsius**.

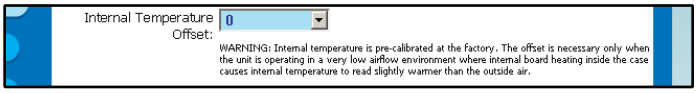


Celsius



Fahrenheit

Note that this setting, as we mentioned earlier in the ***Alarms*** section, does not affect your alarm settings! All it does is change the unit in which the sensor readings are displayed; the MicroGoose automatically keeps track of and converts alarm thresholds and temperature measurements to the appropriate units internally. An alarm threshold set at **`85°F`** while the ***Temperature Unit*** is set to display in **`Fahrenheit`** will still trip at the "correct" temperature of 29.4°C if ***Temperature Unit*** is later changed to **`Celsius`**, even though the alarms page will still show the original setting of **`85°F`**.

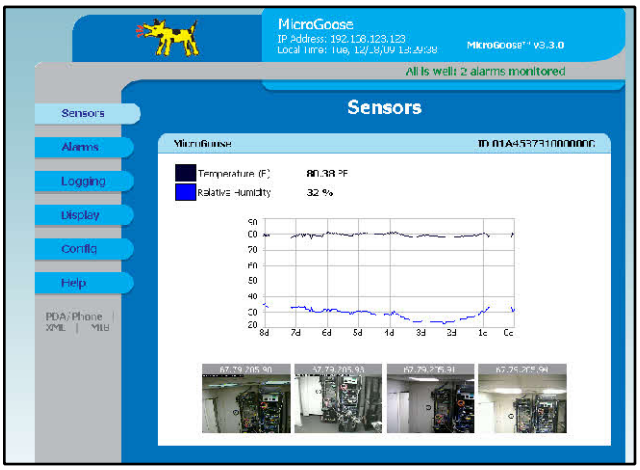

Internal Temperature Offset:
0
WARNING: Internal temperature is pre-calibrated at the factory. The offset is necessary only when the unit is operating in a very low airflow environment where internal board heating inside the case causes internal temperature to read slightly warmer than the outside air.

The next control, ***Internal Temperature Offset***, deserves a bit of explanation. Under normal conditions, you should not need to change this control from its default setting of **`0`**; however, there may be times when it appears as though the MicroGoose's internal temperature sensor is reading a little higher than would be expected. Generally, when two temperature-measuring devices in the same room disagree on their temperature readings, it is simply due to localized differences in air temperature due to convection currents, heat generated by nearby equipment, their relative proximities to air-conditioning vents, and even the relative accuracy and tolerances of the two devices.

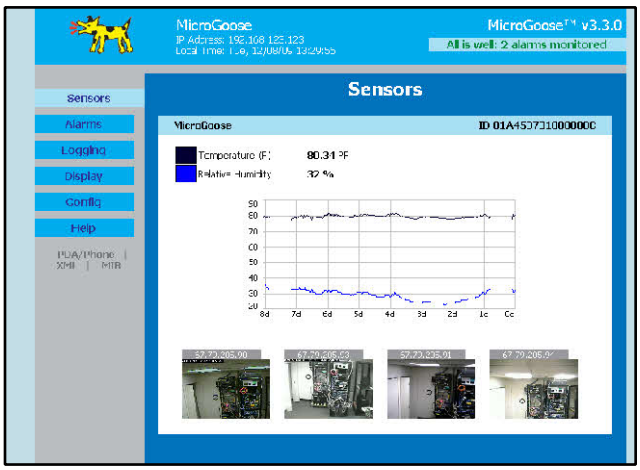
However, it can sometimes be the case, especially in tightly-enclosed environments with little or no airflow, that the heat generated by the MicroGoose's own electronics can register on its internal sensor. If you have reason to believe this is the case, you can use this control to compensate for this "self-heating" effect; by adjusting this control setting, you can cause the MicroGoose to automatically subtract anywhere from 1°F to 13°F (0.56°C to 7.22°C) from its internal temperature readings. Note that this does not affect any external temperature-measuring devices! ***Internal Temperature Offset*** applies only to the internal temperature sensor.

(Also note: the accuracy of the MicroGoose sensors is ±0.5°C (approx. ±0.9°F). Most inexpensive, i.e. non-laboratory-grade, thermometers and temperature-measurement devices will generally have similar levels of accuracy, at best. This means that even if you place the MicroGoose within an inch or two of another thermometer for comparison, the measurements can be as far as ±1°C (±1.8°F) apart and still be within each respective device's range of accuracy.)

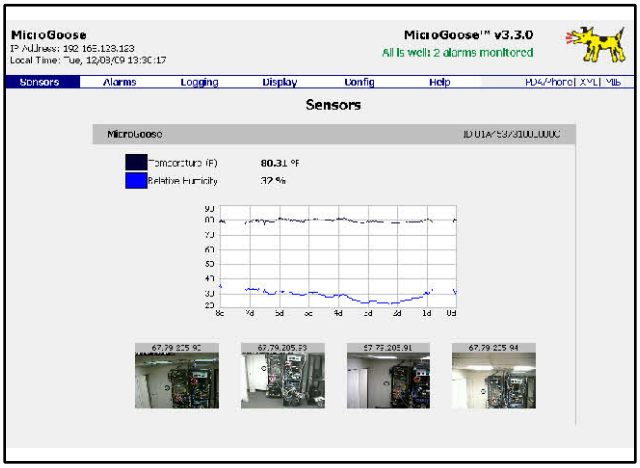
The ***Interface Type*** control allows you to switch between any of four different web-page appearances:



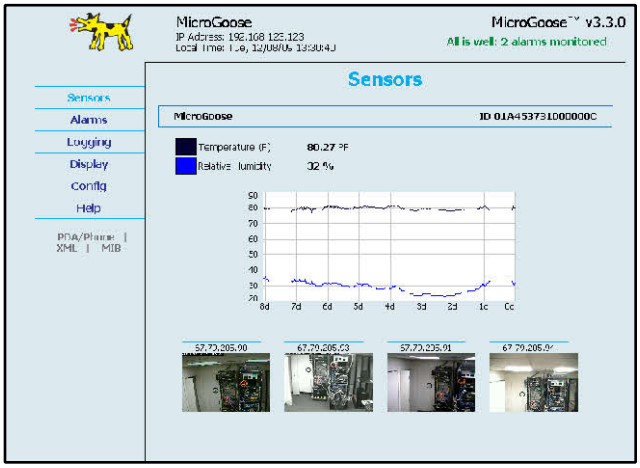
Contemporary
(default)



Lite Modern



Classic Goose

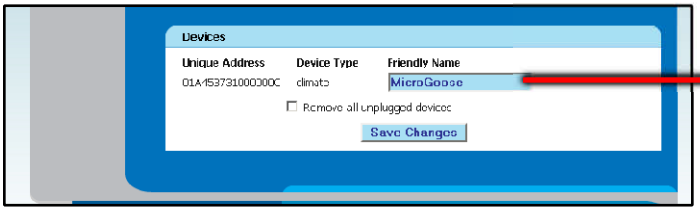


Austere

"***Contemporary***" is the default appearance for a new unit, and is the interface which has been used (and will continue to be used) for all of the sample screenshots in this manual. However, if you prefer one of the others, simply change the ***Interface Type*** control (and click the by-now-familiar ***Save Changes*** button) and from that point on the web pages will show in your preferred style. "***Austere***" may be of particular interest to those users who may need to frequently access their MicroGoose units from devices such as PDAs, mobile phones, or over slower dial-up connections, as it is almost entirely text-based aside from the history graphs. "***Classic Goose***" provides users of our previous WeatherGoose-I series with a more familiar-looking interface (although it won't be entirely identical, of course, since the MicroGoose has many new features and options which the Goose-I series lacks).

Ÿ ***Devices*** section:

This section allows you to modify the "friendly" names of the MicroGoose. Notice that any title placed here changes not only the name of its associated graph-and-measurement block, but also the unit name in the banner at the top of the page.



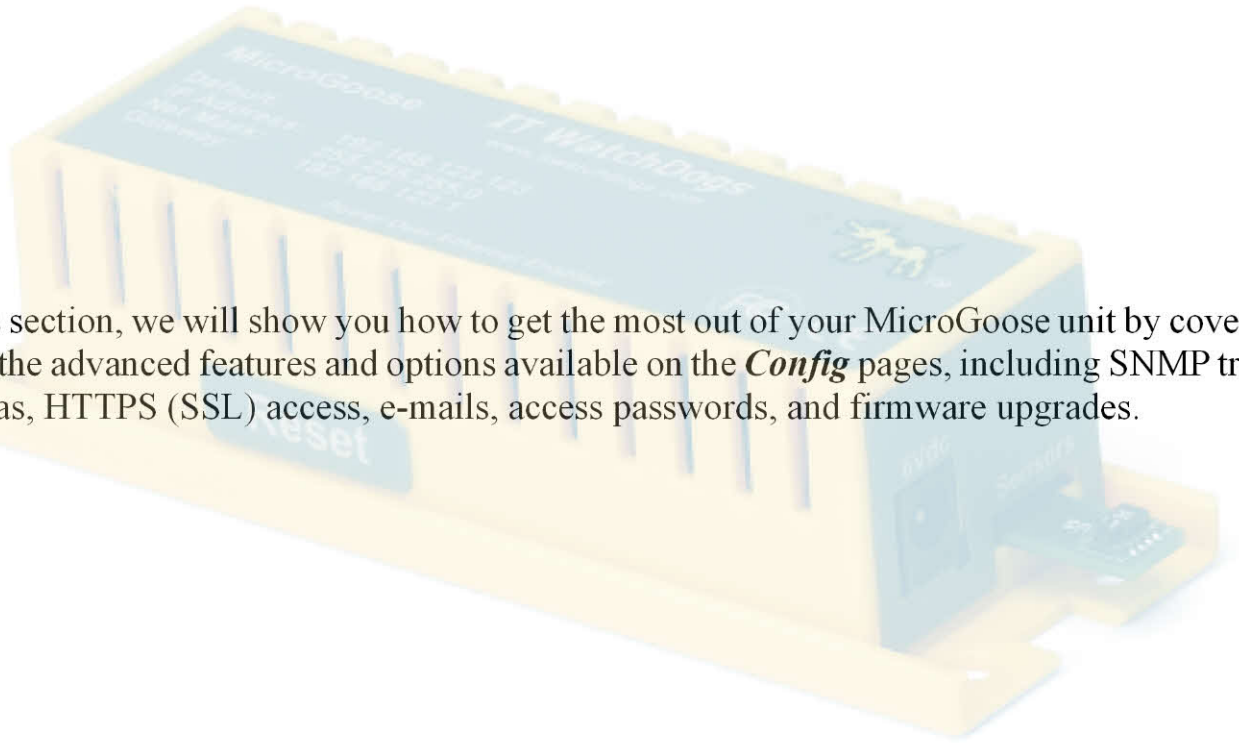
These "friendly" names will also appear in any alert e-mails sent by the unit when a sensor alarm occurs. "Friendly" names are limited to 31 characters in length.

Beneath the list of devices is a checkbox control, titled "***Remove all unplugged devices.***" This control actually serves no purpose on the MicroGoose, since this model does not support external add-on sensors.

Note that under normal operation, the internal sensors should never show as UNPLUGGED in the device list. In the extremely unlikely event that the internal sensors ever show as UNPLUGGED, it indicates a serious hardware fault has occurred and the unit is in need of factory repair!

MicroGoose USER MANUAL

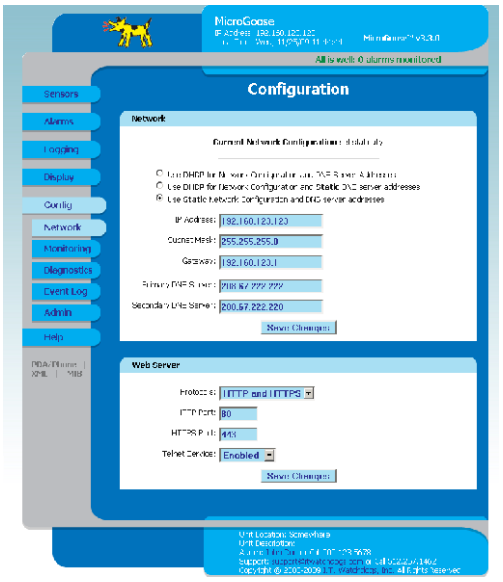
Part 3 : Advanced Operation



In this section, we will show you how to get the most out of your MicroGoose unit by covering the all of the advanced features and options available on the ***Config*** pages, including SNMP traps, IP cameras, HTTPS (SSL) access, e-mails, access passwords, and firmware upgrades.

Clicking on the ***Config*** tab brings up the first of a series of pages which control all of the MicroGoose's networking functions, along with some other global-configuration options not found on the previous pages.

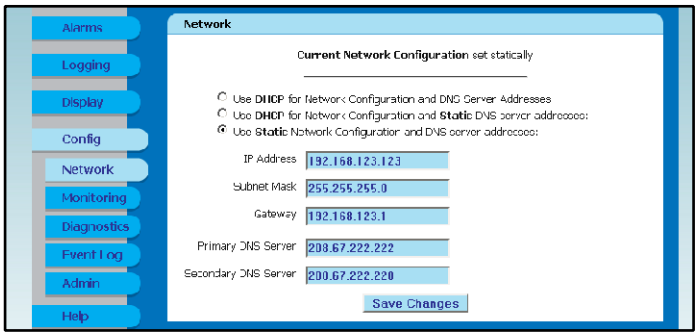
You will also find some system-diagnostic functions here; under normal circumstances, you shouldn't need to use these, but we'll touch on them briefly so that you can be aware of their existence in the unlikely event that you have a problem with your system requiring in-depth technical support and are asked to supply some information from these diagnostic pages.



Ÿ The ***Configuration: Network*** page

The first ***Config*** page, which always comes up by default when the ***Config*** tab is clicked from any other page, is ***Configuration: Network***. We saw this page earlier, during the QuickStart Setup Guide portion of this manual, and briefly touched on its functions. It is divided into three sections: ***Network***, ***Web Server***, and ***DNS Servers***.

Ÿ ***Network*** settings:



These settings should be familiar to anyone who has set up a network or an internet-capable device before.

The first set of controls is a trio of buttons which allows you to determine how the unit will get its network configuration settings. You can either have the unit acquire both its IP address and DNS Server settings via DHCP, use DHCP for the IP address while using static DNS addresses, or use static addresses for both IP and DNS. The default is **`Use Static Network Configuration and DNS server addresses`**; if you set this control to either of the DHCP-using options click ***Save Changes***, the unit will attempt to acquire its network settings via DHCP. Note that if a DHCP service is available, this will immediately override any static IP settings, and the unit will no longer respond on the static address!

Warning: if you enable one of the DHCP options, and a DHCP service is not available or cannot be reached, the unit will no longer respond on the static address and you will not be able to get back into the unit! If this occurs, use the hardware ***RESET*** procedure described in section 1 to reset the unit to the factory-default addresses and disable DHCP.

The next settings are ***IP Address***, ***Subnet Mask***, and ***Gateway***. When your MicroGoose first arrives from the factory, or if you use the ***RESET*** button on the front of the unit, these settings will default to the following "local subnet" settings:

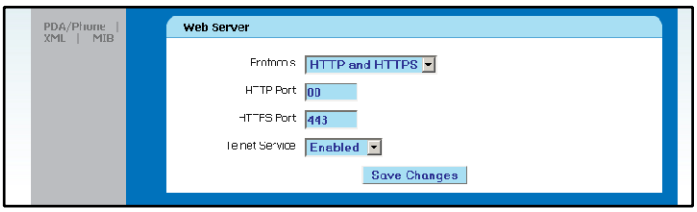
IP ADDRESS:	**`192.168.123.123`**
SUBNET MASK:	**`255.255.255.0`**
DEFAULT GATEWAY:	**`192.168.123.1`**

Note that when you change these settings, the change will take effect immediately upon clicking the Save Changes button, and the unit will no longer respond on **`192.168.123.123`**. (Users of our older WeatherGoose-I

line should take particular note of this, as it is a significant difference from the behavior of the previous design where **192.168.123.123** was always available as a backup.)

Below the IP address settings, you will find a pair of fields named ***Primary DNS Server*** and ***Secondary DNS Server***. This is where you can specify the DNS servers for the MicroGoose to use to look up any servers or addresses which you specify by URL rather than by direct IP address. Any standard DNS server can be used, as long as the MicroGoose is able to access it from your network.

Ÿ ***Web Server*** settings:



These settings control the behavior of the MicroGoose's built-in web server.

The first setting, the ***Protocols*** drop-down box, has three possible settings: "**HTTP and HTTPS**" (the default), "**HTTP**", or "**HTTPS**". This controls whether or not the unit will require, or deny, an SSL-secured connection *vs.* an unsecured connection. If you are using the MicroGoose solely inside your own private network and not exposing it to a public IP address, these settings probably aren't important to you; on the other hand, users who need to remotely administer their installations over the public internet may prefer to have the unit refuse HTTP (non-SSL) connections and permit only HTTPS (SSL-encrypted) connections.

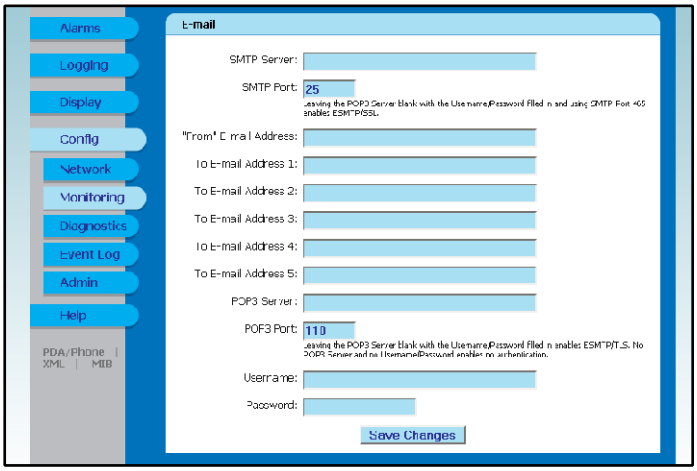
The next two settings, ***HTTP Port*** and ***HTTPS Port***, should be left at their defaults of **80** and **443**, respectively, unless you have some particular need to change them, as these are the ports which a web browser will attempt to connect with by default whenever you type **http://*<unit's ip address>*** or **https://*<unit's ip address>*** into the browser's address bar. If you change these port numbers, then you will need to add the new port numbers to the end of the URL; i.e if you change ***HTTP Port*** to **95**, then you will have to type **http://*<unit's ip address>*:95** into the browser's address bar.

The last setting, ***Telnet Service***, determines whether the MicroGoose will accept incoming Telnet connections on port 23. This service provides access to a configuration menu which can be used to reset some of the MicroGoose's parameters remotely, or even initiate a full restart of the firmware if necessary. It is **Enabled** by default, but can be **Disabled** if you prefer. (For further details on how to use the Telnet service, refer to Appendix B.)

Ÿ The ***Configuration: Monitoring*** page

The next page of configuration settings is ***Configuration: Monitoring***, which contains all of the network settings that specifically relate to environmental alarms and monitoring: ***E-mail***, ***SNMP***, and ***Cameras***. You will also find a pair of controls that let you test your e-mail and SNMP settings without actually having to drive one of your sensors into an alarm condition.

Ÿ ***E-mail*** settings:



This set of controls allows you to configure the unit to send e-mail alerts. Note that in order to send alerts, the MicroGoose must be able to reach the outgoing e-mail server through your network and log into it with the credentials you provide, and the server must be a standard SMTP mail server; i.e. the MicroGoose cannot log into and use a Microsoft Exchange server (unless that server is configured to also permit SMTP as well as Exchange's proprietary protocol). These, too, should be reasonably familiar if you've had occasion to set up an e-mail client before.

The first field, ***SMTP Server***, allows you to specify the outgoing mail server the MicroGoose should use, either by direct IP address or by URL.

Underneath ***SMTP Server***, the ***SMTP Port*** field allows you to set the IP port used by the server to accept connections. Normally, this should be left at its default setting of **25**, unless the administrator of your e-mail server tells you otherwise.

"From" E-mail Address lets you specify an e-mail address from which the MicroGoose's e-mails will appear to come from. This field can generally be set to anything you like, although depending on how your SMTP server is configured, you may need to make sure that the e-mail address is one that the SMTP server will consider valid. (It is not uncommon for SMTP servers to be configured to refuse to send e-mails with "from" addresses that don't correspond to their list of known users, to help prevent those servers from being "hijacked" to send spam with invalid "from" and "reply-to" addresses.)

The next five fields, labeled ***To E-mail Address 1*** through ***5***, let you specify up to five potential recipients for e-mail alerts. These, too, can be any valid e-mail address, as long as they are in the standard format of **<username>@<domain or IP address>**. Users of our previous WeatherGoose-I line should keep in mind that alert e-mails will not be automatically sent to all five of these addresses; instead, they can be be selectively assigned so that different alarm events will send e-mails only to the selected recipients. This function is covered in more detail in the Alarms Page section.

POP3 Server and ***POP3 Port*** serve the same function as the SMTP settings, except that they apply to your incoming POP3 mail server. While you cannot actually send e-mails to the MicroGoose, some mail systems require any computer or device attempting to send e-mails through them to validate themselves as a known user by performing an operation known as POP3-before-SMTP where the device first has to log in to a known POP3 mailbox account before it's allowed to use the SMTP service to send mail. Here, again, the ***POP3 Server*** can be specified either by URL or IP address, and the ***POP3 Port*** should be left at its default of **110** unless your e-mail administrator specifically requires you to change it.

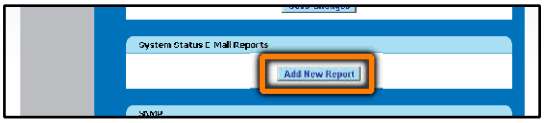
Username and ***Password*** are the login credentials used to connect to your mail servers.

The MicroGoose's e-mail system also supports secure, encrypted e-mail server connections via ESMTP/SSL or ESMTP/TLS. These features can be enabled by selectively filling in certain fields on the ***E-mail*** section and leaving others blank. The possible SMTP methods are:

for a standard (i.e. non-encrypted) SMTP connection which does not require POP-before-SMTP validation:	Ÿ leave ***POP3 Server***, ***Username***, and ***Password*** blank Ÿ leave ***SMTP Port*** set to **25** (unless your administrator specifies a different port)
for a standard (i.e. non-encrypted) SMTP connection which requires POP-before-SMTP validation:	Ÿ fill in the ***POP3 Server*** field with the IP or URL of your POP3 server Ÿ enter the login credentials for your POP3 server into the ***Username*** and ***Password*** fields Ÿ leave ***SMTP Port*** set to **25** (unless your administrator specifies a different port)
for an ESMTP/SSL connection:	Ÿ leave the ***POP3 Server*** field blank Ÿ enter the login credentials for your SMTP server into the ***Username*** and ***Password*** fields Ÿ set the ***SMTP Port*** to **465**
for an ESMTP/TLS connection:	Ÿ leave the ***POP3 Server*** field blank Ÿ enter the login credentials for your SMTP server into the ***Username*** and ***Password*** fields Ÿ leave ***SMTP Port*** set to **25** (unless your administrator specifies a different port)

Ÿ ***System Status E-Mail Reports*** settings:

This feature allows you to generate periodic status e-mails reporting the unit's current sensor readings. Any sensor which is currently in one or more alarm states will have the word "TRIPPED" next to its reading.



To add a new status e-mail event, click the ***Add New Report*** button. Just like we saw with the ***Alarms*** settings, a new event appears in the list, ready to be filled in with your desired settings. Once you have filled in the various fields and checkboxes, click the ***Save Changes*** button and the MicroGoose will begin sending status e-mails to the specified recipient(s) at the specified intervals. As with the ***Alarms***, you can have multiple events – up to a total of eight – and selectively assign them to be sent to one or more of your configured e-mail addresses.

The ***Report Time (hour)*** and ***(min)*** fields determine at what time(s) the reports will be sent out. For ***Report Period*** intervals of 24 hours or longer, the report will be sent out once, at the specified time; for intervals of 12 hours or less, the reports will begin at the specified time and then be sent out every specified ***Report Period*** interval thereafter. Obviously, for this function to work, the system's clock must be set, either manually or via an NTP server; if the clock is not set, no reports will be sent at any interval.

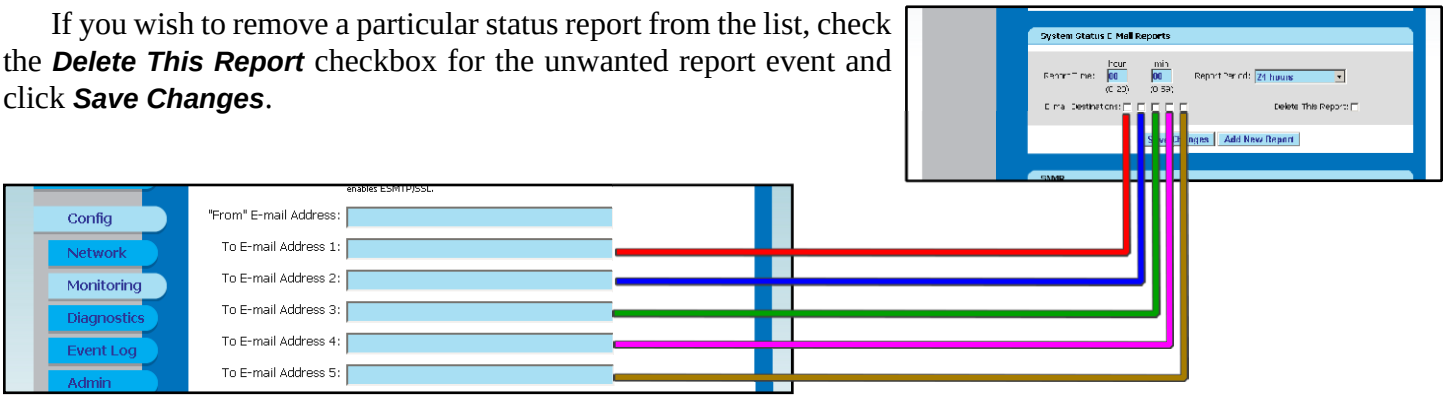
This provides you with a lot of flexibility, but can be potentially confusing from a brief description, so let's see if we can clarify it with a few examples. Let us say that the current time, just to simplify our examples, is 10:00:00 (10:00AM) on Monday, January 1st. That being the case:

- Ÿ if you set a ***Report Time*** of **08:00** (8:00AM) and a ***Report Period*** of **24 hours**, the unit will begin sending status e-mails at 08:00 (8:00AM) on Tuesday, January 2nd, and will continue sending one status e-mail every day at 08:00 (8:00AM) thereafter. The reason the reports won't begin until the Tuesday is because the unit has to wait for the indicated time on the clock to come back around.
- Ÿ if, however, you were to set the ***Report Time*** to **13:30** (1:30PM) instead, the reports would begin at 13:30 (1:30PM) that same day (Monday, January 1st) instead.

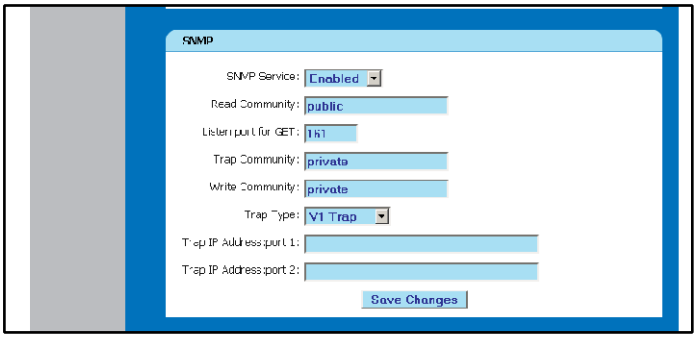
- if you set a ***Report Time*** of **08:00** (8:00AM) and a ***Report Period*** of **every Friday**, the first status report would be sent on Friday, January 5th, and continue every Friday thereafter.
- if, on the other hand, you set a ***Report Time*** of **08:00** (8:00AM) and a ***Report Period*** of **every Monday**, the reports would not begin until the <u>following</u> Monday, January 8th, since 08:00 of the current Monday (the 1st) has already passed.
- if you set a ***Report Time*** of **08:00** (8:00AM) and a ***Report Period*** of **2 hours**, the unit would begin sending status e-mails at 08:00 (8:00AM) on Tuesday, January 2nd, and then every two hours thereafter.
- if, however, you set a ***Report Time*** of **14:00** (2:00PM) and a ***Report Period*** of **2 hours**, the unit will begin sending e-mails at 14:00 (2:00PM) on Monday the 1st, and every 2 hours thereafter.

The ***E-mail Destinations*** checkboxes work the same way as the ones on the ***Alarms*** page; recipient(s) can be selected by setting the appropriate checkboxes starting with **email1:** on the left through **email5:** on the right.

If you wish to remove a particular status report from the list, check the ***Delete This Report*** checkbox for the unwanted report event and click ***Save Changes***.



- ***SNMP*** settings:



If your facility includes SNMP (Simple Network Management Protocol) monitoring, you can configure the MicroGoose to be aware of your SNMP system so that it can send traps when alarm conditions occur.

The MicroGoose's SNMP capabilities are significantly enhanced over the previous WeatherGoose-I system. As we hinted at earlier in the ***Alarms*** section, you can now specify up to two different servers to receive alarm traps and selectively direct different alarms to either or both of the specified SNMP managers, whereas previously all traps were globally broadcast to all specified managers. The MicroGoose also supports SNMP v2c and permits the sending of v2c-type *NOTIFY* events rather than v1 *TRAPs*, and supports SNMP SET operations to set certain parameters remotely as well as read them. (As of firmware rev. 3.3.x, SNMP v3 is also supported; additional settings for v3 support have their own parameter block and will be covered in the next section.)

One feature which has been retained from the WeatherGoose-I to the MicroGoose is that the appropriate MIB file for the unit is contained within the unit's memory and can be downloaded directly from it at any time, simply by clicking on the ***MIB*** link directly below the column of tabbed buttons on the left-hand side of the web page. Clicking this link will serve up a .ZIP file which contains both the MIB, and a CSV-style spreadsheet describing the OIDs which are available to be read.

The actual setup and use of SNMP agents and management systems is well beyond the scope of this manual, but here is a brief description of the available network settings relating to SNMP.

SNMP Service : determines whether SNMP is active or not. If you set this field to **`Disabled`**, the unit will not send traps or accept GET or PUT requests from SNMP managers. The default is **`Enabled`**.

Read Community : this field specifies the community to which the MicroGoose belongs for GET operations. Any SNMP manager attempting to retrieve information via GET must belong to the same community.

Listen port for GET : is the UDP port which the MicroGoose will listen for incoming requests from your SNMP management system(s). The default setting is **`161`**, which is the typical default "out-of-the-box" destination port for SNMP agents, but you may assign any valid UDP port your particular SNMP installation requires. Make sure that this port is not set to the same port as TRAP/NOTIFY!

Trap Community : this field specifies the community to which TRAP or NOTIFY events will be sent.

Write Community : this field specifies the community to which the MicroGoose belongs for SET operations. Any SNMP manager attempting to set parameters via SET must belong to the same community.

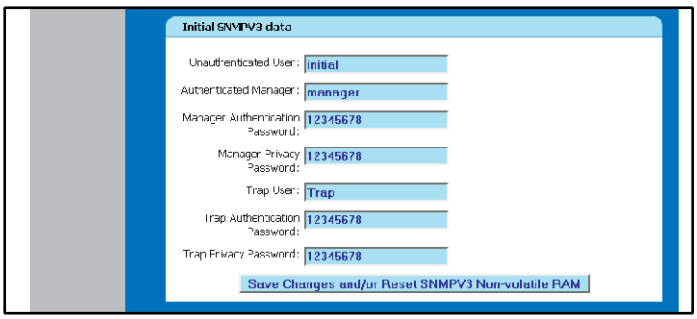
SNMP System Name, ***SNMP System Location***, and ***SNMP System Contact*** simply allow you to specify some information about the MicroGoose unit, which can be used to identify it via SNMP querys later. As with the ***Admin Info*** fields mentioned briefly in the QuickStart Setup portion of the manual (and which will be covered again in the following section on the ***Configuration: Admin*** page), the MicroGoose does not actually attempt to use this information for any of its own operations, so these fields can contain whatever information you wish, or even be left blank if you prefer.

Trap Type : this control determines whether the MicroGoose sends SNMPv1-style *TRAP* events, SNMPv2c-style *NOTIFY* events, or SNMPv3-style *NOTIFY* events when an alarm condition occurs.

Trap IP Address:port # : you can specify up to two SNMP managers to receive *TRAP* or *NOTIFY* events in these fields, and then selectively direct alarm events to either or both via the appropriate checkboxes on the ***Alarms*** page. The destinations can be specified either by IP address or by URL, in <address>:<port> form. Port **`162`** is the usual default, but may be assigned to any valid UDP port your SNMP installation requires. Make sure this port is not the same as the LISTEN port.

- ***Initial SNMPV3 data*** settings**:**

As of firmware revision v3.3.x, the MicroGoose series includes support for the newer SNMP v3 protocol, as well as legacy support for v1 and v2c. The v3 standard offers a number of important security and remote-configuration enhancements, including message authentication, privacy, and access control; this section will allow you to view and configure the MicroGoose's initial SNMP v3 Manager and Trap accounts. As with SNMP v1 and v2c, a complete explanation of how to use SNMP v3 is well beyond the scope of this manual; the following is merely a brief overview of the available settings on the ***Config*** page.



Unauthenticated User : some SNMP v3 manager implementations allow for a newly-installed piece of equipment to be accessed by a designated "unauthenticated user" account name for initial configuration. The MicroGoose's unauthenticated username defaults to '**`initial`**', and can be changed here if necessary. The "unauthenticated user" account uses a null key for both the authentication and privacy keys, and uses the **noAuthNoPriv** method to provide read-only access to the MIB. Note that not all SNMP v3 implementations permit the use of unauthenticated requests.

Authenticated Manager : the name of the SNMP v3 manager account.

Manager Authentication Password : this is the password used to sign messages sent by this account. Also known as the user's **authKey**.

Manager Privacy Password : this is the password used to encrypt the data portion of messages sent by this account. Also known as the user's **privKey**.

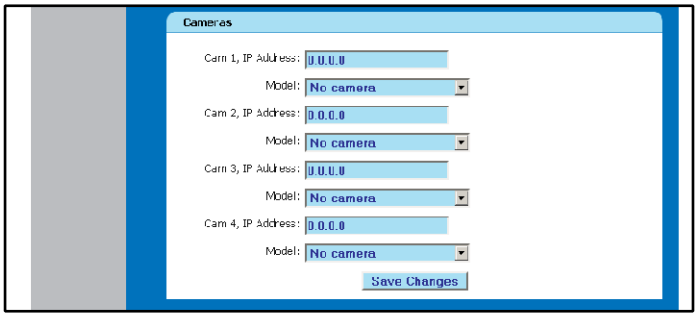
Trap User : the name of the SNMP v3 account which will send traps from this device to the Manager when an alarm threshold is exceeded. (*i.e.* the Manager expects to receive traps from this username.)

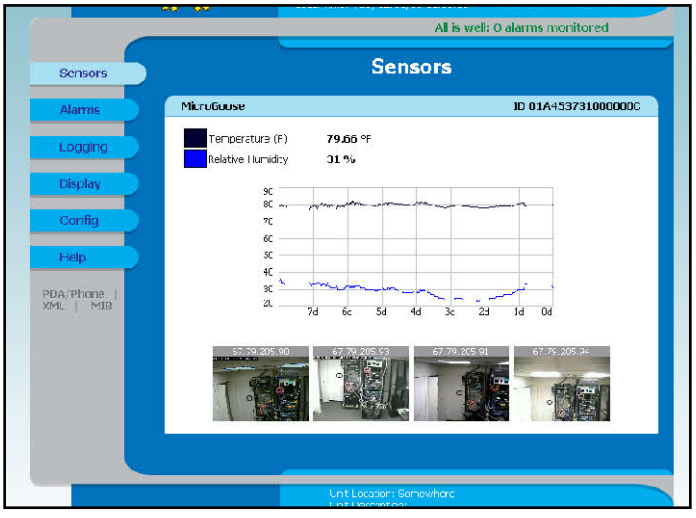
Trap Authentication Password : the **authKey** password used to sign trap messages sent by the device to the SNMP Manager.

Trap Privacy Password : the **privKey** password used to encrypt the data portion of messages sent by the device to the SNMP Manager.

Save Changes and/or Reset SNMPV3 Non-volatile RAM : this button requires a bit of explanation. As with the "Save Changes" buttons on the other configuration sections, this button will cause any changes to the ***Initial SNMPV3 data*** section to be saved in the MicroGoose's flash memory. However, it will also erase any other account settings which may have been remotely cloned or configured from the SNMP Manager on this unit! This block of settings is only intended to be used for first-time setup of SNMP v3; once you have accessed the unit from the Manager all further configuration, including the modification or removal of existing SNMP v3 user accounts, should be done remotely via the Manager, rather than from the unit's ***Config*** page.

Ÿ ***Cameras*** settings:





The MicroGoose, like its predecessor, is able to display still-image "thumbnails" for up to four IP cameras as part of the monitoring display on the ***Sensors*** page. Note that the MicroGoose does not actually monitor or analyze the camera images! It merely embeds the still image into its web page and makes it a clickable link which you can use as a convenient way to quickly access the camera itself. Any actual camera-monitoring functions such as image-sequence or video recording, motion detection, etc. must be performed by the camera itself and its associated application software (if any), or by appropriate 3rd-party software.

Any cameras configured here will be displayed on the ***Sensors*** page, beneath the unit's history graph, in order from left to right.

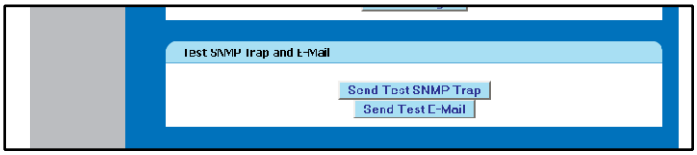
All four pairs of ***IP Address*** and ***Model*** controls work identically: ***IP Address***, of course, specifies the IP address of the camera you wish to display; ***Model*** specifies the make and model of camera which is at that address. Note that it is necessary for you, the user, to specify the model of camera because different cameras (even ones from the same brand or manufacturer) often have distinctly different methods of retrieving a still image as an web page-embeddable JPEG, and often do not provide any easy way for an outside device (such as the MicroGoose) to determine the make and model of camera on its own. Note also that due to these behavioral differences between camera models, only the models listed in the drop-down box are supported. (Additional models may be supported in future firmware upgrades.) It is possible

that other models from the same manufacturer(s) might also work if they are sufficiently similar to one of the listed models, but the use of non-supported cameras cannot be guaranteed or supported.

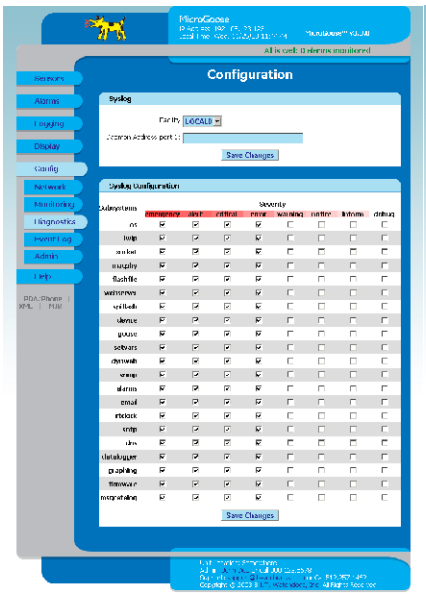
For this function to work correctly, the IP cameras must be reachable *by the computer you are browsing from*, not by the MicroGoose itself! This is an important distinction for those users who intend to administer their systems over the public internet from remote locations. Since the images do not pass through the MicroGoose and are not served from it, but are instead served directly from the cameras by embedded <IMG> tags in the web page, it is not sufficient merely for the MicroGoose to be accessible from a public, static IP address from outside your facility's local network and firewall; the IP cameras must also be exposed and browsable from outside as well. Otherwise, these thumbnails will appear as blank spaces or "broken link" icons in your browser, and clicking on them will not take you to the live camera image.

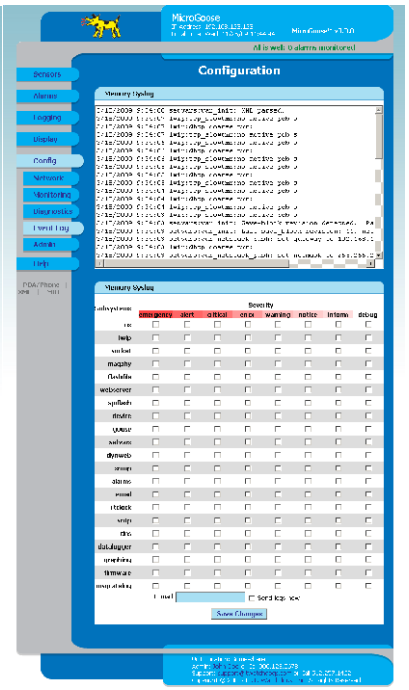
Ÿ ***Test SNMP Trap and E-Mail*** buttons:

These, at least, should be fairly self-explanatory. Once you have your E-mail and SNMP settings configured, you can test them by clicking either of these buttons, and a test event will be broadcast to all of the e-mail addresses or SNMP managers which have been configured in the above sections.



Ÿ The ***Configuration: Diagnostics*** and ***Configuration: Event Log*** pages





These pages allow the user to configure various system-diagnostics options to capture error messages and debug information from the MicroGoose's internals, and either send them on to a configured *Syslog* daemon in real-time or capture them to a log which can later be e-mailed.

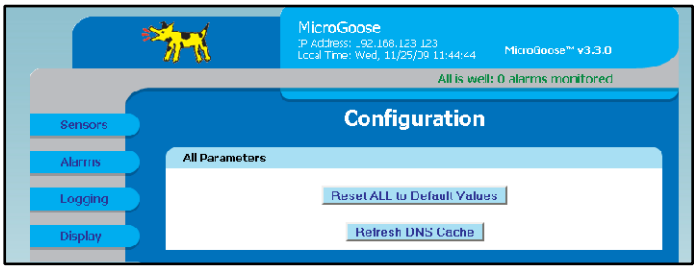
The ***Config:Diagnostics*** page, along with a properly-configured *Syslog* daemon running on a host computer elsewhere within the user's network, replaces the old *udpdb* diagnostic tool which some of our WeatherGoose-I customers may have used in the past when working with IT Watchdogs' technical support to resolve an issue. Its advantages are that *Syslog* is a more widely-used *de facto* standard which more IT system administrators are likely to be familiar with and already have access to, and that it minimizes network traffic by having the MicroGoose "push" its diagnostic messages at the *Syslog* daemon as each system event occurs rather than the unit having to be constantly polled as in *udpdb*. Also, the matrix of event-type and severity checkboxes allows us to narrow down the diagnostic messages to only those events which are of interest to the issue at hand, further reducing network traffic and the amount of data needing to be logged and reviewed. These improvements will be especially apparent if it should be necessary to gather diagnostic information over an extended period.

The ***Config: Event Log*** page, on the other hand, will be at least partly familiar to WeatherGoose-I users; the "***Memory Syslog***" window at the top of the page is equivalent to the "***Event Log***" window which used to be at the bottom of the ***Alarms*** page on the WeatherGoose-I, and serves a similar purpose. Again, though, its functionality has been significantly enhanced with a matrix of event-type and severity checkboxes to choose which events are of interest. There is also a control at the bottom of the page which allows you to enter an e-mail address and send the logs directly from the unit (assuming that e-mail functions are not the problem at issue, of course!), rather than needing to cut-and-paste text into a separate e-mail program.

Currently, neither of these pages are likely to be of significant interest under normal circumstances. They are provided mainly to assist IT Watchdogs in remote diagnostics and technical support, in the unlikely event that you encounter problems setting up or using your equipment. While altering these settings will not harm or disable your unit, they may cause some functions on the other web pages to be less responsive, and/or cause the logging memory to fill up with unnecessary status and debug data while leaving less room for actual sensor readings. Unless you are asked by IT Watchdogs technical support to enable or change any of the settings on these pages, these settings should not be disturbed.

Ÿ The ***Configuration: Admin*** page

The last page of configuration options are primarily concerned with administrative functions such as the real-time clock and account settings. It is also possible to upload firmware upgrades from here, and do a global reset of the unit back to factory defaults if needed.



The first controls you will find at the top of the ***Config: Admin*** page are a pair of buttons: ***Reset ALL to Default Values***, and ***Refresh DNS Cache***. Both of these controls do exactly as their names suggest.

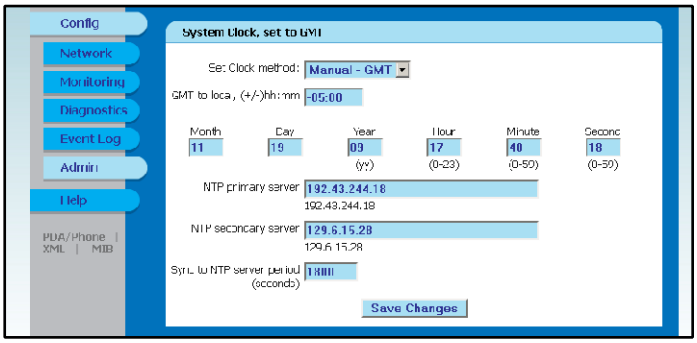
Reset ALL to Default Values will reset the following parameters back to their factory defaults:

- Ÿ All configured ***Alarms*** events will be deleted.
- Ÿ On the ***Logging*** page:
  - Ÿ the ***Time Range*** control will reset to **`1 month`**.
  - Ÿ all checkboxes which determine which sensors appear on the graph will be cleared.
- Ÿ On the ***Display*** page:
  - Ÿ***Date Format*** resets to **`USA (MM/DD/YY)`**
  - •***Temperature Unit*** resets to **`Fahrenheit`**
  - Ÿ***Internal Temperature Offset*** resets to **`0`**
  - Ÿ***Interface Type*** resets to **`Contemporary`**
- Ÿ All "friendly names" reset to the default factory names for those sensors.
- Ÿ the ***DNS Servers*** are reset to **`208.67.222.222`** and **`208.67.222.220`**
- Ÿ all ***E-mail*** addresses, username/password, and server information is erased. ***SMTP Port*** and ***POP3 Port*** reset to the defaults of **`25`** and **`110`**, respectively.
- Ÿ all ***System Status E-mail Reports*** events are deleted.
- Ÿ all ***SNMP*** parameters are reset:
  - Ÿ***Read Community***: **`public`**
  - Ÿ***Listen port for GET***: **`161`**
  - Ÿ***Trap Community***: **`private`**
  - Ÿ***Write Community***: **`private`**
  - Ÿ***SNMP System Name***, ***Location***, and ***Contact*** fields are reset to generic "John Doe" placeholders
  - •***use v2c notify instead of trap***: unchecked (disabled)
  - •***Trap IP Address:port*** #: both are blanked
- Ÿ all ***Cameras IP Address*** and ***Model*** settings are reset to **`0.0.0.0`** and **`No camera`**, respectively.
- Ÿ ***Set Clock method*** is reset to **`Manual`**
- Ÿ the ***NTP servers*** are reset to **`192.43.244.18`** and **`129.6.15.28`**
- Ÿ ***Sync to NTP server period*** is reset to **`1800 seconds`**
- Ÿ all ***Name and Password Configuration*** settings are blanked
- Ÿ all ***Admin Info*** fields are reset to generic "John Doe" placeholders

In other words, ***Reset ALL to Default Values*** returns your MicroGoose to a condition that is about as close to fresh out-of-the-box as it can get, short of erasing the network IP address settings as well. (Those settings are spared so that you can continue to access the unit, since obviously it would be undesirable for the unit to revert to the "local address" setting of 192.168.123.123 if you are trying to administer the unit remotely!)

The ***Refresh DNS Cache*** button, on the other hand, simply causes the unit to erase any cached IP addresses it has already looked up via DNS, and perform new DNS requests on URL-specified addresses in the configuration fields. This may be useful if you have reconfigured your network or moved your e-mail servers to a different IP address, and the MicroGoose hasn't yet refreshed the DNS entries on its own and is still trying to access those services at the old IP address.

Ÿ ***System Clock*** settings:



The MicroGoose includes a hardware real-time clock which keeps time even when the system loses power, and which can be set to periodically resynchronize itself with an external NTP time server. This clock is used to record time stamps for each entry in the data log, and to trigger time-based events such as periodic system-status e-mails. Note that the graphing, logging, and periodic status e-mail functions will not operate if the clock is not set! The unit will, however, continue to monitor the sensors and generate alarms, since those functions are concerned only with current sensor readings and are not dependent on knowing what particular time it is or how much time has elapsed between events.

Set Clock method allows you to determine whether the clock syncs itself with the NTP server, or only from the time and date fields in this section. If **`Manual`** mode is selected, the clock will only be set once, when the ***Save Changes*** button is clicked, to the time and date entered in the appropriate fields, and then will continue to keep time from there. **`NTP Server`** mode will cause the MicroGoose to query the time server(s) specified in the ***NTP primary server*** and ***NTP secondary server*** fields, and then periodically re-sync itself at the intervals specified in the ***Sync to NTP server period*** setting.

NTP time servers, regardless of their physical location, always provide the current time in GMT. The ***GMT to local*** field lets you specify the offset to be applied to GMT for your local time zone. (Please note that the WeatherGoose currently has no provision to automatically compensate for Daylight-Saving Time, so make sure you take this into account when entering the offset.)

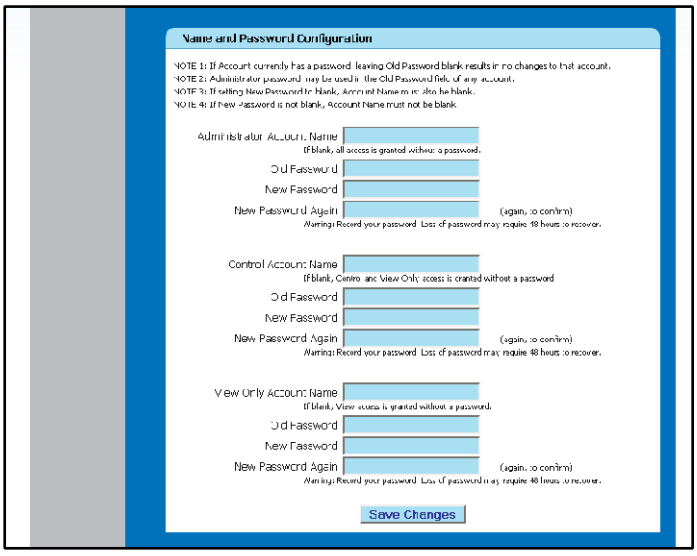
The next row of fields, below ***GMT to local***, allow you to specify the current date as ***Month***, ***Day***, and two-digit ***Year*** (the leading two digits are always assumed to be "20", since it seems reasonable to suspect that very few, if any, of these units will still be in service by the year 2100!), and the current ***Hour***, ***Minute***, and ***Second***. Note that if you are only using **`Manual`** setting mode and do not intend to sync with NTP servers, you could just enter the local time here and set the ***GMT to local*** offset to **`00:00`** – however, if you have specified a GMT offset and intend to use NTP time servers, make sure you enter the correct GMT time here, not necessarily your local time. (On the other hand, if ***Set Clock method*** is set to **`NTP Server`** mode, and the NTP server IPs are valid and reachable, it doesn't matter what you put in these clock-setting fields since the unit will sync to the time supplied by the NTP servers as soon as it finds them.)

NTP primary server and ***NTP secondary server*** allow you to specify the desired NTP time servers, either by IP address or URL.

Sync to NTP server period determines how often the unit will sync with an NTP server. The default is 1800 seconds, or 30 minutes, but can be set to as long as 65535 seconds, or just over 18 hours.

The real-time clock has its own internal backup power source, which will keep the clock running for up to 10 days if the unit's primary power source is disconnected or lost. Note that this backup power does not keep the entire MicroGoose running; i.e. the unit will not continue to log sensor data, generate alarms, or be web-accessible if main power is lost!

Ÿ ***Name and Password Configuration*** settings:


Name and Password Configuration
NOTE 1: If Account currently has a password, leaving Old Password blank results in no changes to that account.
NOTE 2: Administrator password may be used in the Old Password field of any account.
NOTE 3: If setting New Password to blank, Account Name must also be blank.
NOTE 4: If New Password is not blank, Account Name must not be blank
Administrator Account Name
(If blank, all access is granted without a password.
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
Control Account Name
(If blank, Control and View Only access is granted without a password
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
View Only Account Name
(If blank, View access is granted without a password.
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
Save Changes

Here, you can set up to three levels of password protection for the MicroGoose, allowing you to restrict which user(s) in your organization are able to view or change the unit's settings. Although these settings are optional, IT Watchdogs highly recommends that you at least set up the *Administrator* account to prevent unauthorized changes to the network and administrative settings.

If a given account's username and password fields are left blank, then the level(s) of access controlled by that account are available to anyone who connects to the unit. Accounts are listed in order of privilege, from highest to lowest, and lower-privilege accounts cannot be set unless the higher-privilege accounts above them are set as well; i.e. you cannot have a *Control* account without an *Administrator* account, and you cannot have a *View-Only* account without both a *Control* and *Administrator* account.

The three levels of accounts have the following privileges:

Ÿ *Administrator*: this account has complete access to the MicroGoose; all pages are viewable, and any setting can be changed – including the ability to change any other account's passwords. Note that this account is the only account which can access the ***Config*** page, and that you must configure this account before you can configure the *Control* or *View-Only* accounts.

Ÿ *Control*: this account is able to:
- Ÿ view all of the web pages except for the ***Config*** page
- Ÿ add or change ***Alarms*** entries
- Ÿ change the graph's time scale and which readings are displayed on the graph (and the LCD, on SuperGoose-II units) on the ***Logging*** page
- Ÿ download and/or erase the log history from the ***Logging*** page
- Ÿ change the settings on the ***Display*** page

Ÿ *View-Only*: this account is able to:
- Ÿ view all of the web pages except for the ***Config*** page
- Ÿ download – but not erase – the log history from the ***Logging*** page.
- Ÿ this account cannot change any setting on any page.

Once you have configured these accounts the way you want them, click the ***Save Changes*** button. If you have configured an *Administrator* account, the unit will now ask you to log in with that username and password before you can continue.

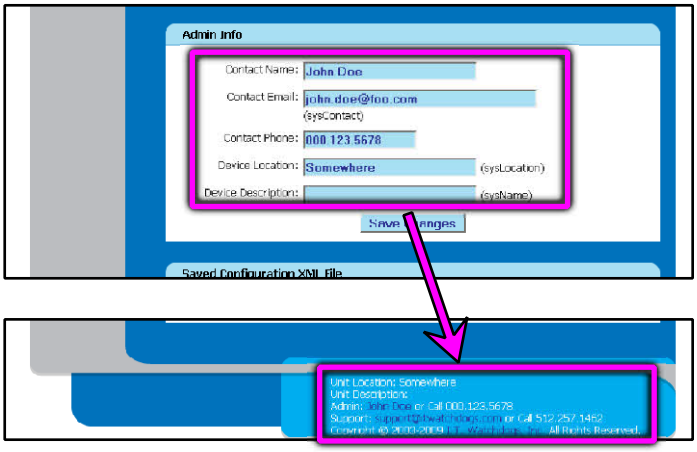
When changing passwords, the unit will require you to provide either the current password for that account, or the current *Administrator* account password, in the ***Old Password*** field, and then type the new password into the ***New Password*** and ***New Password Again*** fields. Both "New" fields must match exactly for the change to be accepted.

If you no longer wish to have a username and password associated with a given account, simply leave the ***Account Name***, ***New Password***, and ***New Password Again*** fields blank while providing the *Administrator* account's password in the ***Old Password*** field.

If you have forgotten your *Administrator* password and cannot get into the configuration pages, you will need to use the hardware *RESET* button, as described in *Part 1: The Grand Tour* of this manual, to reset the passwords and regain access to the unit. Note that you will need physical access to the unit to perform the *RESET*, and that the unit will also revert to its factory default IP address of 192.168.123.123 as part of the *RESET*, so you will also

need to reconnect the unit directly to a PC as described in the *QuickStart Setup* portion of the manual to re-program the unit back to the correct IP-address settings for your network.

Ÿ ***Admin Info*** settings:

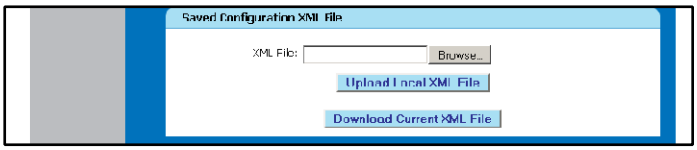


These fields allow you to change the unit's administrative-contact information and specify its physical location, if desired. This information will be displayed at the bottom of each page, as shown here.

Note that these fields are for your users' convenience only; the MicroGoose does not use the information entered here for anything other than to fill out the display at the bottom of each page, and to provide a clickable link to send the system administrator an e-mail. (This e-mail address does not necessarily need to be any of the alarm-recipients specified in the ***Config: Monitoring*** page, and the unit will not attempt to send alarm or status e-mails to this address.)

Since the MicroGoose does not use this information for any actual monitoring functions, these fields may be filled out with any information you like, or even be left blank if you prefer.

Ÿ ***Saved Configuration XML File:***



One of the MicroGoose series' many new features is the ability to export and import a configuration file containing all of the settings on a particular unit. This can be especially useful if you intend to set up multiple identical Goose-and-sensor combinations in several facilities, since it allows you to simply configure one unit and then rapidly "clone" its settings – including network configurations, alarm settings, display options, e-mail and SNMP configurations, etc. – into your other installations.

To export the unit's current configuration to an XML file on your PC, simply click the ***Download Current XML File*** button.

- Ÿ Note: depending on your browser and version, your browser may ask you where to save the XML file, or it may simply attempt to display it as though it were a web page or a text file. If the latter occurs, simply use your browser's "save as" function to save the displayed XML data to a disk file. In general, you should choose "**`XML file`**", "**`Web Page, XML Only`**", or similar as the "***Save As Type***" in the file-saving dialog box.
- Ÿ Also note: some versions of the Opera browser prior to Opera 10 may attempt to parse or display the XML data as an unstyled web page, rather than displaying the XML data, which may result in a seemingly blank page. If you wait until the page finishes downloading, you can still "Save As" even though the page appears blank – however, make sure that you choose "**`Text File`**" or "**`All Files (*.*)`**" for the "***Save as Type***", then add the **`.XML`** extension to the end of the filename, as some of these older Opera versions will write an incorrect version/encoding value into the XML header if you choose one of the "**`XML File`**" options, which could cause the MicroGoose to reject the file when you try to upload it back into the unit.

Once the file has been saved to your local PC, you can use any text or XML editor to view and modify the information in it before uploading it back into other Goose-II units. A full explanation of all of the XML fields is well beyond the scope of this manual, and most of them you probably will not want to directly modify via the XML data anyway since it's much easier to change them from the unit's web page. However, one set of

parameters which you might want to modify before cloning across multiple units are the network IP settings; if you have multiple units to configure, each with its own statically-assigned IP address, you can open the XML file and look for the following lines at the top of the file:

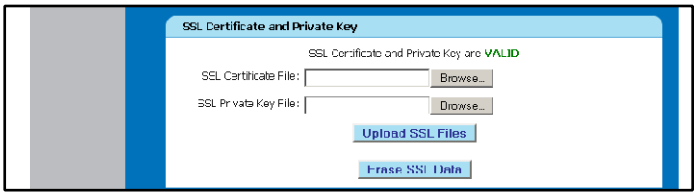
```
    <network status="0" ip-address="192.168.123.123"  netmask="255.255.255.0"
gateway="192.168.123.1" http-port="80"  https-port="443"  web-protocols="both"
telnet-enable="1">
      <dns-num0 ip-address="208.67.222.222" >
      </dns-num0>
      <dns-num1 ip-address="208.67.222.220" >
      </dns-num1>
   </network>
```

Here, you could save multiple copies of the XML file, one for each unit to be configured, changing the **`ip-address`**, **`netmask`**, **`gateway`**, and the DNS settings as appropriate for each unit. (We do not recommend changing the other settings from here; in particular **`status`**, **`web-protocols`**, and **`telnet-enable`** should be left alone.)

To import a saved configuration into the unit from a previously-saved XML file on your PC:

1. Click the ***Browse...*** button, browse to the directory you saved the XML file to, then double-click to select the appropriate file.
2. Click the ***Upload Local XML File*** button, and wait. The upload process may take a few minutes, depending on the size of the update file and network traffic. As the XML configuration data is uploaded and parsed, you will see a series of progress messages; once you see the message "**XML file upload succeeded**", the process is complete.
3. Return to the unit's web page (keeping in mind that depending on the XML settings, its IP address may have changed) and it should now have the newly-imported configurations in place.

Ÿ ***SSL Certificate and Private Key***:



As we saw earlier in the Config:Network settings, a MicroGoose can be accessed either via unsecured HTTP, or over an SSL-secured HTTPS connection. A MicroGoose unit comes with a self-signed SSL certificate already built in, which it will use by default. This is usually sufficient for the average user, but for those users who prefer to use their own self-generated SSL certificates and private keys (or whose corporate IT security policies require the use of a properly-signed certificate/key combination provided by a trusted 3rd party such as Verisign or Thawte), the MicroGoose provides those users with the ability to install their certificate/key combination here. You can either generate your own self-signed Certificate and Key files using tools such as OpenSSL, or purchase an authenticated certificate set. In either case, the uploaded certificate and key files must be in binary .DER format; the unit cannot accept ASCII-text .PEM-formatted certificate/key files.

At the top of this section, you'll see a message stating whether the SSL Certificate and Private Key are "valid" or "invalid." Note that this only applies to the certificate data which you can upload from this section, so don't panic if you see an "invalid" status when you haven't uploaded a certificate yet and the unit is still operating on its internal self-signed credentials; this message does not indicate that the unit's own default certificate is invalid!

To upload a prepared set of SSL Certificate and SSL Private Key files, use the ***Browse...*** buttons to locate and select the appropriate .DER files, then click the ***Upload SSL Files*** button. Note: once the upload is complete, you will need to reboot the unit for the new SSL certificate to take effect.

If all goes well, after you reboot the unit, you should be able to access the unit via HTTPS with its newly-installed credentials. If you are unable to access the unit via HTTPS, or your browser insists that the

credentials are invalid, come back to this configuration page via plain HTTP and check the status message to see whether the unit thinks the current SSL certificate/key combination is valid or invalid. Note also that it may be necessary to clear your browser's cache, or close and reopen the browser, to make it pick up the new certificate and key rather than trying to use the cached certificate(s) it previously accepted from the unit.

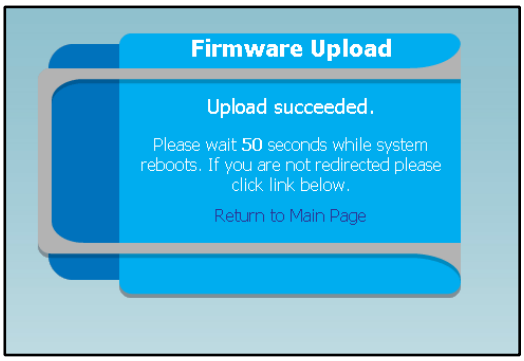
If you wish to remove any installed SSL certificate/key combinations and revert to the unit's default self-signed certificate, just click the ***Erase SSL Data*** button and reboot the unit. Again, it may also be necessary to clear your browser's cache to get back into the unit after removing the user-installed certificates and reverting to the unit's own self-signed default certificate.

Ÿ ***Upload System Firmware***:

From time to time, firmware updates may be provided to add new features or improve the MicroGoose's capabilities. Firmware-update capabilities have been significantly improved in the MicroGoose; unlike the old WeatherGoose-I series, which required you to run a separate updater program from a Windows command prompt in order to update the firmware, MicroGoose has this function built right in to the web-page interface. It is also no longer necessary to directly connect the unit to a host PC via a crossover cable to ensure a reliable update, as the MicroGoose's ability to recover from an interrupted or failed file transfer is greatly improved over the previous design.

To upload new firmware:

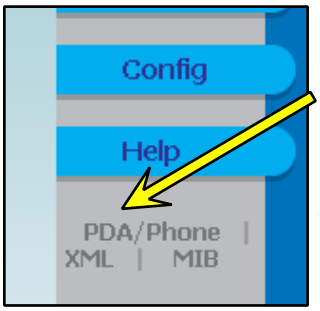
1. First, download the new firmware from our site. Updates will typically be packaged as a .ZIP file containing several supplementary files, such as updated MIBs; simply unZIP the entire package to a temporary directory.
2. Click the ***Browse...*** button, and browse to the temporary directory you unZIPped the update package into. The file you are looking for will have a .PKG extension; double-click to select that file.
3. Click the ***Upload New Firmware*** button, and wait. The upload process may take a few minutes, depending on the size of the update file and network traffic. (Note that due to the various differences between browsers, you may or may not see an in-progress report as each block of data is uploaded.) During this time, both the ***IDLE*** and ***ACTIVITY*** LEDs should blink in unison and, on the SuperGoose-II, the LCD will read "**`FIRMWARE UPDATING`**".
4. Once the upload is complete, you should see a page similar to the screen shown here, with a 60-second countdown while the unit validates and installs the new firmware. Once the installation is complete, the unit will reboot and return to the default ***Sensors*** page.


Firmware Upload
Upload succeeded.
Please wait 50 seconds while system reboots. If you are not redirected please click link below.
Return to Main Page

Under normal circumstances, a firmware update will not erase your log history, unit configuration, or alarm settings. However, if you want to take extra caution, simply download all of your logged data from the ***Logging*** page, then use the export/import configuration functions described above to save a copy of all of your device configurations, before uploading your new firmware.

MicroGoose USER MANUAL

Appendix A: PDA/Phone View



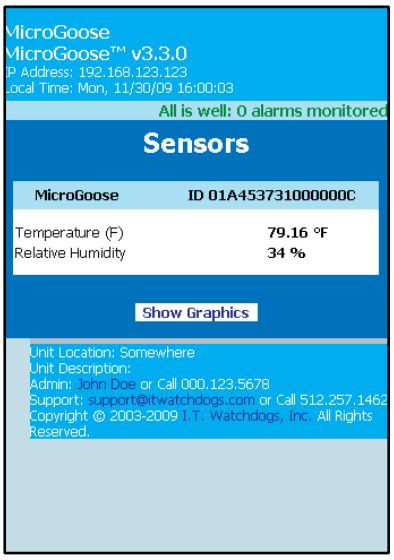
In addition to the standard web-page view, the MicroGoose offers a compressed view of the ***Sensors*** page suitable for the small screens of a PDA or internet-capable cell phone. This compressed view can be accessed by clicking on the *PDA/Phone* link, as shown here:

Initially, the compressed view will display text only, with no graphs, in order to fit the widest variety of available PDA/phone displays. If your particular cell phone or PDA has a higher-resolution display which is able to accommodate the graphs, clicking on the ***Show Graphics*** button at the bottom of the page will switch to a different version of the page which displays the graph histories and color keys. To switch back to the text-only mode, click the ***Hide Graphics*** button.

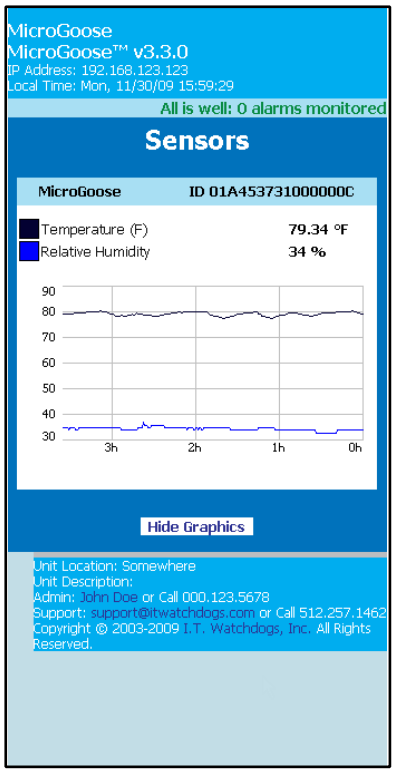
Both of these pages are individually bookmark-able, separate from each other and from the main ***Sensors*** page, so you can bookmark either or both of these in your PDA/cell-phone browser to go directly to them rather than having to go through the *PDA/Phone* link on the main page.

Note: the ***Sensors*** page is the only page for which a compressed "PDA/Phone" view is provided.

PDA/Phone view, no graphs



PDA/Phone view, with sensor graphs



MicroGoose USER MANUAL

Appendix B: Using the Telnet service menu

The MicroGoose provides a simple Telnet menu from which the user can view and modify various system settings, clear the system's memory, or reboot the unit. As a general rule, it's likely that very few users will actually need to make use of this feature, but there are some specialized circumstances where it may prove useful to an administrator who needs to reboot or reset a unit remotely after an accidental misconfiguration. Please note that the MicroGoose's Telnet service does not provide access to a general-purpose O/S command prompt or "shell" which can be used to launch programs or perform arbitrary file-system operations; it is merely a system-configuration menu which uses the Telnet protocol rather than HTTP. Nevertheless, if having a device with an open listener on Telnet port 23 for any reason is a security concern for your particular environment, the Telnet service can be disabled (and the port closed) in the ***Web Server*** settings section of the ***Configuration: Network*** page.

To connect to the MicroGoose Telnet service, simply open a command or shell prompt and issue the command **`telnet xxx.xxx.xxx.xxx`**, where "xxx" represents the IP address of the unit you wish to connect to, then enter the login name and password when prompted. Note that you must have the Administrator account configured on the MicroGoose to log in to Telnet! To protect against unauthorized use, the Telnet service will not accept a blank username and password.

Once you have successfully logged in, the following commands are available:

- **`account`** – issued by itself, this command lists the current account ID settings. It can also be used to change those settings, as follows:
  - an account's username can be changed by adding **`admin`**, **`control`**, or **`view`** to the command, followed by the account name you wish that account to be set to.
  - an account's password can be changed by adding **`passwd`** to the command, followed by the account whose password you wish to change (**`admin`**, **`control`**, or **`view`**), followed by the new password.
- **`admin`** – issued by itself, this command lists the current ***Admin Info*** settings. It can also be used to set or change those settings by adding **`name`**, **`email`**, **`phone`**, or **`location`** to the command, followed by the information you wish the specified field to be set to. Equivalent to the ***Admin Info*** section on the ***Admin*** tab of the ***Configuration*** section.
- **`bye`** / **`exit`** / **`quit`** – close the Telnet session and exit.
- **`deletelog`** – deletes the logged sensor data
- **`help`** – by itself, gives a list of available commands. **`help <command>`** will give further information about the specified command.
- **`http80`** – resets ***HTTP Port*** to the standard default of **`80`**
- **`https443`** – resets ***HTTPS Port*** to the standard default of **`443`**
- **`mail`** – by itself, this command lists the current e-mail settings. It can also be used to set or change those settings, as follows:
  - the SMTP and POP3 server settings may be changed by adding **`smtp <server> <port>`** or **`pop <server> <port>`**, respectively. Note that **`<port>`** is optional, and **`<server>`** may be specified either by IP address or URL.
  - the mail-server login credentials may be changed by adding **`user <id> <password>`** to this command. Note that both parameters must be specified.

- the e-mail recipients may be set by adding **to<n> <address>**; i.e. the command **mail to1 foo@bar.com** would set the ***To E-mail Address 1*** field on the ***Config:Monitoring*** page to **foo@bar.com**.
- additionally, **mail test** will cause the unit to attempt to send a test e-mail, equivalent to the ***Send Test E-Mail*** button at the bottom of the ***Config:Monitoring*** page.

- **net** – if given with no additional parameters, this command displays the current network settings. Typing **net dhcp** will enable DHCP on the unit, while **net <ip> <mask> <gateway>** will set the unit's IP Address, Subnet Mask, and Gateway. (Note that in the latter usage, all three settings must be provided; i.e. it is not allowed to specify only an IP Address with no Mask or Gateway.)
- **netreset** – resets the ***Network*** settings to their factory defaults. Equivalent to using the ***RESET*** button on the front of the unit.
- **reboot** – initiate a full reboot of the system firmware; equivalent to a power-cycled cold-start.
- **remove** – causes the unit to forget any Digital Sensor Bus devices which are unplugged. Equivalent to the ***Remove all unplugged devices*** checkbox on the ***Display*** page.
- **report** – provides a complete report of the unit's current configuration settings.
- **resetall** – equivalent to the ***Reset ALL to Default Values*** button on the ***Configuration: Admin*** page, this command causes a total reset of all of the unit's configuration settings, returning the unit to a nearly fresh-out-of-the-box state.
- **restore** – reset all of the "friendly name" fields back to their factory defaults.
- **server** – by itself, this command shows which web-server services – HTTP or HTTPS – are enabled and what port(s) they are set to. This command can also be used to change those port settings, or disable a service, by issuing the command **server http** or **server https**, followed by either the port number you wish to assign them to, or **off** to disable that service. Warning: it is possible, using this command, to disable both HTTP and HTTPS; if this happens, you will be locked out of the web pages entirely and will only be able to regain control of the unit via this Telnet service menu or the physical ***RESET*** button on the front of the unit!
- **snmp** – by itself, this command lists the current SNMP settings. It can also be used to set or change those settings, as follows:
  - adding **port <port#>** sets the listening port for incoming GET requests.
  - the read, write, or trap communities can be set by adding **readcom**, **writecom**, or **trapcom** respectively, followed by the name of the community.
  - the SNMP system **name**, **location**, and **contact** e-mail can be set by adding those commands, followed by the parameters you wish them to be set to.
  - adding **notify v2c** or **notify trap** determines whether the unit will use SNMP v2c-style ***notify*** events or v1-style ***trap*** events. Equivalent to checking or unchecking the ***Use v2c notify instead of trap*** checkbox on the ***Config:Monitoring*** page.
  - the **trap1** and **trap2** destinations can be set by adding those commands, followed by the SNMP host **<destination>:<port>** settings. **<port>** is optional.
  - additionally, **snmp test** will cause the unit to attempt to send a test SNMP trap, equivalent to the ***Send Test SNMP Trap*** button at the bottom of the ***Config:Monitoring*** page.

Appendix C: Configuring the MicroGoose for use with some popular free e-mail services

It used to be that environmental monitoring systems were primarily found only in large IT installations, such as server farms and corporate data centers, which could be expected to have their own internal e-mail servers which the monitoring units could make use of to send alerts to the IT administration staff. However, as our low-cost monitoring systems have increasingly found their way into a wider variety of smaller-scale applications and office environments many of these customers, who often do not possess their own dedicated in-house e-mail servers, have expressed a need to be able to configure the units to send e-mail alerts via a "free", publicly-accessible e-mail service such as AOL or Gmail.

The following services have been found to be compatible with the MicroGoose's e-mail system.[1] Note that to use any of these services, you will first need to visit their sites and create an account if you do not already have one there. To configure your MicroGoose to use one of these services as its outgoing e-mail server, click on the ***Config*** tab, then click ***Monitoring***, go to the ***E-mail*** options block, and set the parameters as follows, depending on the service you intend to use:

Google "Gmail":

- ***SMTP Server:*** **`smtp.gmail.com`**
- ***SMTP Port:*** **`587`**
- ***"From" E-mail Address:*** *your Gmail e-mail address (e.g., **`user@gmail.com`**)*
- ***POP3 Server:*** *(leave blank)*
- ***POP3 Port:*** **`110`**
- ***Username:*** *your Gmail login username (e.g., **`user`**) – not the full e-mail address!*
- ***Password:*** *your Gmail login password*

AOL.com:

- ***SMTP Server:*** **`smtp.aol.com`**
- ***SMTP Port:*** **`587`**
- ***"From" E-mail Address:*** *your AOL e-mail address (e.g., **`user@aol.com`**)*
- ***POP3 Server:*** *(leave blank)*
- ***POP3 Port:*** **`110`**
- ***Username:*** *your AOL e-mail address (e.g., **`user@aol.com`**)*
- ***Password:*** *your AOL login password*

GMX.com:

- ***SMTP Server:*** **`mail.gmx.com`**
- ***SMTP Port:*** **`25`**
- ***"From" E-mail Address:*** *your GMX e-mail address (e.g., **`user@gmx.com`**)*
- ***POP3 Server:*** *(leave blank)*
- ***POP3 Port:*** **`110`**
- ***Username:*** *your GMX e-mail address (e.g., **`user@gmx.com`**)*
- ***Password:*** *your GMX login password*

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[1] ***Please note: this information is provided solely as a convenience to those MicroGoose owners and customers who may find it useful for their intended applications. IT Watchdogs has no connection with any of the companies or services described; no recommendation or endorsement is intended or implied, nor does IT Watchdogs make any claims or guarantee of these services' reliability, quality of service, or fitness for any given application.***